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# UK METEOROLOGICAL OFFICE
# GLOBAL DATA MONITORING REPORT

August 2000

**Data Assimilation**
**Meteorological Office**
**London Rd**
**Bracknell**
**Berkshire**
**RG12 2SZ**

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...oooOOOooo...

## 1. Introduction

As the WMO-appointed lead centre for monitoring surface marine data, the U.K. Meteorological Office produces monthly statistics on the quality of these observations received at RSMC Bracknell. This report includes this information along with statistics for most other types of data. The figures and tables contained herein are presented according to the agreed standards for the exchange of monitoring results.

The report is based on data received at the UK Meteorological Office Headquarters, Bracknell in time for inclusion into the appropriate analysis (the current cut-off time is approximately 7.2 hours after each analysis time). The evaluation of data quality is based on comparison with the appropriate 6-hour global model forecast (background field). Generally, the background field is of high quality except in data sparse areas, tropical regions and areas close to steep orography where care should be taken in interpreting the statistics shown.

Comments or queries on the report are welcome and should be addressed to:-

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RG12 2SZ

## 2 Global Data Monitoring Statistics

### Ships, Fixed buoys, Platforms and Drifting buoys observations

TABLES 1-2 contain lists of the stations which are considered to have returned suspect observations of pressure, windspeed, wind direction or temperature, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 1 and 2 show 10 degree lat/long box average numbers of SHIP/SYNOP and DRIFTER observations received per day throughout the month at Bracknell and assimilated into model runs. Only data from the main hours of 00 UTC, 06 UTC, 12UTC and 18 UTC are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

### Synop Observations

Table 3 contains a list of stations which are considered to have returned suspect observations of Pressure during the month. The criteria for quality control are given in the header page. The reporting practice of each station is included in the list of statistics.

At the UK Met. Office, we monitor SYNOP pressure after it has been interpolated to our Global NWP Model's surface height. For most synoptic stations (about 75%), the surface pressure (at the model surface) is calculated from the reported station-level pressure, or, if this is not available, the height of a standard pressure-level (e.g. 850 hPa or 700 hPa). If neither of these are available, or if the reported station-level pressure is deemed unreliable, the reported mean sea-level pressure is used (about 25% of SYNOPs).

### Aircraft observations

Tables 4A (300-150 hPa) and 4B (1000-301 hPa) contain lists of statistics calculated from data received from all airline carriers.

Figures 3A (300-150 hPa) and 3B (1000-301 hPa) show 10 degree lat/long box average numbers of aircraft reports in AIREP/AMDAR code (including AIREP, ACAR, AMDAR, ASDAR and ADS) received per day throughout the month at Bracknell and assimilated into model runs. Observations with a vector wind difference (compared with the model background field) of >60 m $s^{-1}$ have been excluded. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Figures 4A-7A (300-150 hPa) and 4B-7B (1000-301 hPa) show wind statistics for AIREP/ASDAR in AIREP/AMDAR code (including AIREP, ACAR, AMDAR, ASDAR and ADS). Observations with a vector wind difference > 60 m $s^{-1}$ have been excluded. Statistics have not been calculated for 10 degree lat/long boxes containing <31 observations.

| Figure | Parameter |
|---|---|
| 4 | Mean wind vectors |
| 5 | Mean observation - background wind vector |
| 6 | Mean observation-background speed (m $s^{-1}$) |
| 7 | RMS observation-background vector (m $s^{-1}$) |

## Radiosonde Observations

TABLES 5-7 contain lists of the stations which are considered to have returned suspect observations of geopotential height, vector wind or wind direction, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 8 and 9 show 10 degree lat/long box average numbers of TEMP 500 hPa GEOPOTENTIAL HEIGHT and TEMP/PILOT 300 hPa WIND observations received per day throughout the month at Bracknell and assimilated into model runs. Data from all hours are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

APPENDIX I shows details of the gross error limits used in TABLES 5 and 6 and the weights used in the RMS values in TABLE 5.

## Satellite Observations

Figures 10-24 show satellite wind statistics for all geostationary satellites. All plots other than **AVAILABILITY** show average data where there are > 10 observations in a 10 degree lat/long box.

| Figure | Parameter Plotted | Layer (hPa) |
|---|---|---|
| 10 | Availability/average daily number | 701-1000 |
| 11 | Vector mean wind (observed) | 701-1000 |
| 12 | Observation-background vector wind difference | 701-1000 |
| 13 | Mean observation-background speed differences | 701-1000 |
| 14 | RMS observation-background vector difference | 701-1000 |
| 15 | Availability/average daily number | 401-700 |
| 16 | Vector mean wind (observed) | 401-700 |
| 17 | Observation-background vector wind difference | 401-700 |
| 18 | Mean observation-background speed differences | 401-700 |
| 19 | RMS observation-background vector difference | 401-700 |
| 20 | Availability/average daily number | 101-400 |
| 21 | Vector mean wind (observed) | 101-400 |
| 22 | Observation-background vector wind difference | 101-400 |
| 23 | Mean observation-background speed differences | 101-400 |
| 24 | RMS observation-background vector difference | 101-400 |

Figures 25-39 show sounding statistics from the polar orbitting satellite NOAA-15. Figure 25 shows the mean daily number of ATOVS soundings, and figures 26-39 show mean and standard deviation observation-background differences for brightness temperature, for selected channels.
N.B. The sounding data is bias-corrected (and thinned) before being assimilated in the UKMO NWP model.

| Figure | | Weighting function peak (hPa) |
|---|---|---|
| 26 | Mean | Surface (HIRS8) |
| 27 | SD | Surface (HIRS8) |
| 28 | Mean | 700 (HIRS15) |
| 29 | SD | 700 (HIRS15) |
| 30 | Mean | 500-700 (HIRS11) |
| 31 | SD | 500-700 (HIRS11) |
| 32 | Mean | 400 (HIRS4) |
| 33 | SD | 400 (HIRS4) |
| 34 | Mean | 700 (AMSUA5) |
| 35 | SD | 700 (AMSUA5) |
| 36 | Mean | 300 (AMSUA7) |
| 37 | SD | 300 (AMSUA7) |
| 38 | Mean | 100 (AMSUA9) |
| 39 | RMS | 100 (AMSUA9) |

## 3 Composite Observing Systems for the North Atlantic (COSNA)

This section shows statistics for upper air (radiosonde and aircraft) and surface (drifter) data for the North Atlantic area for data received at Bracknell during the month.

TABLE 8 shows quality statistics for **Mean Sea-level Pressure, Windspeed and Wind Direction** received at Bracknell in DRIFTER code during the month for the area 10°N - 80°N, 85°W - 0°W.

TABLE 9 shows quality statistics for **Temperature and Vector Wind** received at Bracknell from aircraft during the month for the area 40°N - 70°N, 60°W - 0°W.

Table 10 - 13 show quality statistics **(Geopotential Height and Windspeed at 100 and 500 hPa)** for all TEMPSHIPS in the area bounded by 0°N - 90°N, 100°W - 40°E and selected TEMP stations within the same area.

## Revisions

1. May 95 Monitoring statistics for NOAA-11 removed. Figures 25-27 now show data for NOAA-12
2. May 95 Notes giving details of observations included in wind direction statistics clarified and corrected.
3. August 95 Monitoring statistics for NOAA-14 added with figures 28-30.
4. February 96 Monitoring statistics for GOES-7 have been replaced by statistics for GOES-8 and GOES-9.
5. April 96. 500 km and 120 km SATEMs replaced by 120 km resolution temperature profiles produced locally from the radiances disseminated by NESDIS.
6. February 97 Monitoring statistics for Meteosat 5 have been replaced by statistics for Meteosat 6.
7. Sept 97 Monitoring statistics for NOAA-12 removed. Figures 25-27 now show data for NOAA-11
8. January 1998. Increase in resolution of UKMO global forecast model.
9. April 1998. GOES winds ceased on 2nd March 1998, and were replaced with GOES high resolution winds from 15th.
10. June 1998. Monitoring statistics for Meteosat-6 were replaced by monitoring statistics for Meteosat-7, from 3rd June.
11. June 1998. Corrections in our processing of radiosonde data resulted in a decrease in the number of 500hPa geopotential heights in Figure 8 of about 230 per 24 hours (compared with previous reports), and a small increase in the number of 300hPa winds in Figure 9.
12. July 1998. Meteosat-5 began transmitting winds from 2nd July, at 63 degrees East (over the Indian ocean), and this data is included in the statistics.
13. July 1998. GOES-9 (at 135W) was replaced mid-month by GOES-10 (initially at 105W, moving towards 135W).
14. February 1999. Problems with NOAA-11, and TOVS data ceased to be assimilated from 26 February.
15. March 1999. UKMO introduced 3-D VAR assimilation system on 29 March, and also began assimilating ATOVS data from NOAA-15.
16. May 1999. Included statistics for ATOVS sounding data from NOAA-15.
17. September 1999. Included statistics for high resolution visible winds from Meteosat-5 and Meteosat-7.
18. October 1999. The 3-D VAR assimilation system was upgraded on 19 October, including improvements in the assimilation of ATOVS radiances, use of SSM/I surface wind speed, an improvement in the calculation of surface pressure for SYNOPs, and thinning and revision of observation errors of aircraft data.
19. November 1999. High resolution visible winds from Meteosat-5 and Meteosat-7 removed until used operationally.
20. April 2000. Aireps in Table 4 and Figures 3-7 split into ranges 300-150 hPa (A) and 1000-301 hPa (B).

## TABLE 1

## MONITORING OF MARINE SURFACE OBSERVATIONS
## MONTHLY SUSPECT LIST - SHIPS, FIXED BUOYS AND PLATFORMS
## MONITORING CENTRE: BRACKNELL
## MONTH: August 2000

**Monitoring procedures**

**Period** :One calendar month.

**Data monitored** :Reports from each unique identifier for ships, fixed buoys and platforms.

**Standard of comparison** :Background field from UKMO global model.

**Observation times** :00, 06, 12, 18 UTC

**Elements monitored**
:Mean sea level pressure (hPa).
:Wind speed ($\mathrm{m\ s^{-1}}$).
:Wind direction (Degrees).

**Parameters monitored**

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
**N.B. a positive bias indicates the observation is veered to the background.**

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors.

**GROSS ERROR LIMIT**
:15 hPa (pressure)
:25 $\mathrm{m\ s^{-1}}$ (vector wind)

**SELECTION CRITERIA** :NOBS $\geq 20$ , and one or more of the following:

1.|bias| $\geq$ 4 hPa (pressure),
$\geq$ 5 $\mathrm{m\ s^{-1}}$ (wind speed),
$\geq$ 30 degrees (direction).

2.SD $\geq$ 6 hPa (pressure),
$\geq$ 80 degrees (direction).

3.PGE $\geq 25$

**N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 $\mathrm{m\ s^{-1}}$**

| IDENTIFIER | HOUR | ELEM | LEVEL | NOBS | NGE | PGE | SD | BIAS | RMS |
|---|---|---|---|---|---|---|---|---|---|
| MEAN SEA LEVEL PRESSURE | | | | | | | | | |
| ATZS | ALL | P | SUR | 21 | 7 | 33 | 4.7 | 1.7 | 5.0 |
| BOAB | ALL | P | SUR | 41 | 0 | 0 | 2.4 | -4.3 | 4.9 |
| C6FE5 | ALL | P | SUR | 43 | 0 | 0 | 1.4 | 6.7 | 6.8 |
| C6HS4 | ALL | P | SUR | 38 | 0 | 0 | 4.3 | -4.1 | 5.9 |
| C6RF6 | ALL | P | SUR | 34 | 1 | 3 | 2.6 | -4.3 | 5.0 |
| DGAF | ALL | P | SUR | 51 | 0 | 0 | 1.0 | -4.9 | 5.0 |
| DGSR | ALL | P | SUR | 39 | 0 | 0 | 1.2 | -4.3 | 4.5 |
| DVRVW6D | ALL | P | SUR | 54 | 0 | 0 | 1.3 | 6.0 | 6.2 |
| ELMQ | ALL | P | SUR | 32 | 0 | 0 | 1.3 | -4.2 | 4.4 |
| ELNL6 | ALL | P | SUR | 35 | 9 | 26 | 5.2 | -1.9 | 5.5 |
| ELVJ9 | ALL | P | SUR | 73 | 0 | 0 | 2.8 | -4.8 | 5.5 |
| ELVY8 | ALL | P | SUR | 36 | 0 | 0 | 1.9 | -5.5 | 5.8 |
| LAFQ5 | ALL | P | SUR | 29 | 0 | 0 | 1.1 | -6.7 | 6.8 |
| MXAR9 | ALL | P | SUR | 22 | 0 | 0 | 1.1 | 4.6 | 4.7 |
| OZUN2 | ALL | P | SUR | 27 | 0 | 0 | 1.5 | 4.4 | 4.7 |
| PDAH | ALL | P | SUR | 38 | 0 | 0 | 1.0 | -6.4 | 6.4 |
| UACN | ALL | P | SUR | 35 | 1 | 3 | 2.4 | 4.0 | 4.6 |
| UAIS | ALL | P | SUR | 53 | 0 | 0 | 1.3 | -4.9 | 5.1 |
| UANA | ALL | P | SUR | 40 | 0 | 0 | 1.1 | -4.5 | 4.7 |
| UBCB | ALL | P | SUR | 27 | 0 | 0 | 2.2 | 5.9 | 6.3 |
| UCAD | ALL | P | SUR | 22 | 1 | 5 | 1.6 | -8.1 | 8.2 |
| UDYN | ALL | P | SUR | 75 | 0 | 0 | 1.0 | 7.1 | 7.2 |
| UGSI | ALL | P | SUR | 22 | 0 | 0 | 0.8 | 4.0 | 4.0 |
| UGWB | ALL | P | SUR | 20 | 0 | 0 | 3.4 | 5.8 | 6.7 |
| UHLE | ALL | P | SUR | 98 | 1 | 1 | 1.1 | -8.6 | 8.6 |
| UHVW | ALL | P | SUR | 21 | 0 | 0 | 2.5 | 4.7 | 5.3 |
| VCJM | ALL | P | SUR | 25 | 24 | 96 | 0.0 | -9.1 | 9.1 |
| VCRT | ALL | P | SUR | 21 | 0 | 0 | 1.3 | -5.3 | 5.4 |
| VGCY | ALL | P | SUR | 22 | 0 | 0 | 2.5 | -4.0 | 4.7 |
| WCV8696 | ALL | P | SUR | 35 | 0 | 0 | 1.8 | -4.4 | 4.8 |
| 8PNI | ALL | P | SUR | 23 | 0 | 0 | 1.1 | -4.5 | 4.6 |
| 9VRA | ALL | P | SUR | 43 | 0 | 0 | 1.3 | -5.2 | 5.3 |
| WIND SPEED | | | | | | | | | |
| C6JD7 | ALL | SPEED | SUR | 35 | 0 | 0 | 5.4 | 15.4 | 16.3 |
| C6NI3 | ALL | SPEED | SUR | 21 | 0 | 0 | 5.1 | 7.1 | 8.7 |
| DGDR | ALL | SPEED | SUR | 32 | 0 | 0 | 6.8 | 9.0 | 11.3 |
| DHEE | ALL | SPEED | SUR | 23 | 0 | 0 | 4.6 | 6.2 | 7.7 |
| ELYI4 | ALL | SPEED | SUR | 24 | 0 | 0 | 5.0 | 11.3 | 12.4 |
| GFWX | ALL | SPEED | SUR | 41 | 0 | 0 | 3.5 | 6.4 | 7.3 |
| MXSD6 | ALL | SPEED | SUR | 22 | 0 | 0 | 4.9 | 6.4 | 8.1 |
| OYVQ2 | ALL | SPEED | SUR | 38 | 0 | 0 | 6.1 | 8.2 | 10.2 |
| PPSO | ALL | SPEED | SUR | 44 | 0 | 0 | 5.1 | 7.8 | 9.4 |
| VRUH8 | ALL | SPEED | SUR | 51 | 0 | 0 | 8.9 | 15.3 | 17.7 |
| VRVI | ALL | SPEED | SUR | 24 | 0 | 0 | 3.1 | 5.0 | 5.9 |
| 3FZX7 | ALL | SPEED | SUR | 26 | 0 | 0 | 3.0 | 6.1 | 6.8 |
| WIND DIRECTION | | | | | | | | | |
| J8KU6 | ALL | DIRN. | SUR | 43 | 0 | 0 | 76.0 | 46.0 | 88.8 |
| UCUP | ALL | DIRN. | SUR | 20 | 0 | 0 | 87.9 | 32.5 | 93.7 |
| UICO | ALL | DIRN. | SUR | 44 | 0 | 0 | 94.8 | -5.7 | 94.9 |
| ZCAK4 | ALL | DIRN. | SUR | 20 | 0 | 0 | 18.5 | 31.6 | 36.6 |

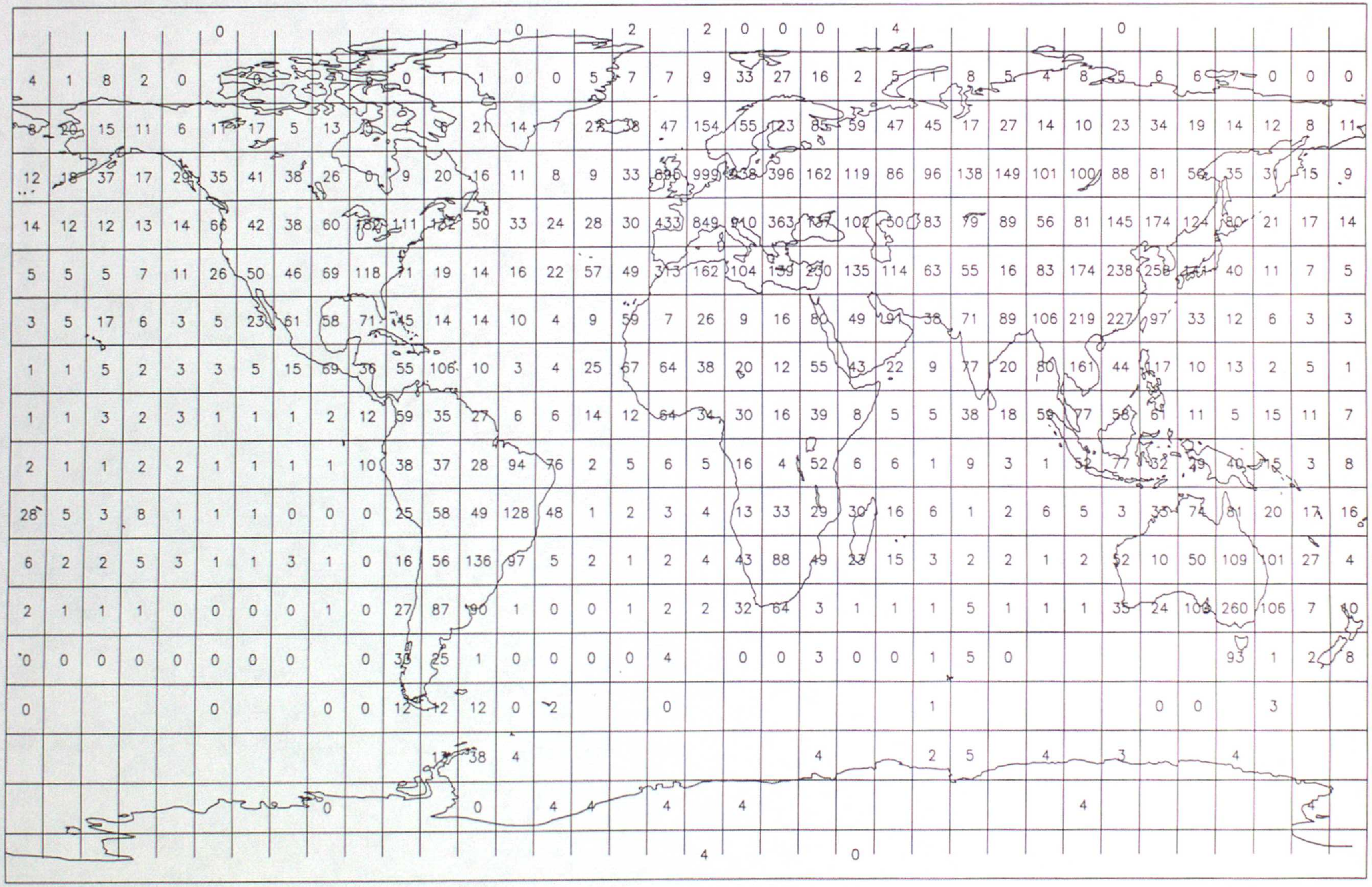
AVAILABILITY – SHIP/SYNOP – AUGUST 2000

MAIN HOURS ONLY

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 21181

FIGURE 1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8 20 15 11 6 11 17 5 13 6 21 14 7 27 38 47 154 155 123 85 59 47 45 17 27 14 10 23 34 19 14 12 8 11
12 18 37 17 29 35 41 38 26 0 9 20 16 11 8 9 33 896 999 438 396 162 119 86 96 138 149 101 100 88 81 56 35 31 15 9
14 12 12 13 14 66 42 38 60 182 111 132 50 33 24 28 30 433 849 910 363 187 102 50 83 79 89 56 81 145 174 124 80 21 17 14
5 5 5 7 11 26 50 46 69 118 71 19 14 16 22 57 49 313 162 104 139 230 135 114 63 55 16 83 174 238 258 151 40 11 7 5
3 5 17 6 3 5 23 61 58 71 45 14 14 10 4 9 59 7 26 9 16 80 49 91 38 71 89 106 219 227 97 33 12 6 3 3
1 1 5 2 3 3 5 15 69 36 55 106 10 3 4 25 67 64 38 20 12 55 43 22 9 77 20 80 161 44 117 10 13 2 5 1
1 1 3 2 3 1 1 1 2 12 59 35 27 6 6 14 12 64 34 30 16 39 8 5 5 38 18 59 77 58 61 11 5 15 11 7
2 1 1 2 2 1 1 1 1 10 38 37 28 94 76 2 5 6 5 16 4 52 6 6 1 9 3 1 52 77 32 49 40 15 3 8
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6 2 2 5 3 1 1 3 1 0 16 56 136 97 5 2 1 2 4 43 88 49 23 15 3 2 2 1 2 52 10 50 109 101 27 4
2 1 1 1 0 0 0 0 1 0 27 87 90 1 0 0 1 2 2 32 64 3 1 1 1 5 1 1 1 35 24 108 260 106 7 10
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0 0 4 4 4 4 4 4
4 0

# TABLE 2

# MONITORING OF MARINE SURFACE OBSERVATIONS
## MONTHLY SUSPECT LIST - DRIFTING BUOYS
## MONITORING CENTRE: BRACKNELL
## MONTH: August 2000

**Monitoring procedures**

**Period** :One calendar month.

**Data monitored** :Reports from each unique identifier for drifting buoys.

**Standard of comparison** :Background field from UKMO global model.

**Position** :Average latitude and longitude for period.

**Observation times** :00, 06, 12, 18 UTC

**Elements monitored** :Mean sea level pressure (hPa).
:Wind speed (m s$^{-1}$).
:Wind direction (degrees).

**Parameters monitored**

| | |
|---|---|
| :NOBS | :Number of observations received excluding duplicates. |
| :NGE | :Number of observations with gross errors. |
| :PGE | :Percentage of observations with gross errors. |
| :SD | :SD of difference of observations from background values excluding those with gross errors. |
| :BIAS | :Mean difference of observations from background values excluding those with gross errors.<br>**N.B. a positive bias indicates the observation is veered to the background.** |
| :RMS | :Root Mean Square difference of observations from background values excluding those with gross errors. |

**GROSS ERROR LIMIT** :15 hPa (pressure)
:25 m s$^{-1}$ (vector wind)

**SELECTION CRITERIA :** NOBS ≥ 20 , and one or more of the following:

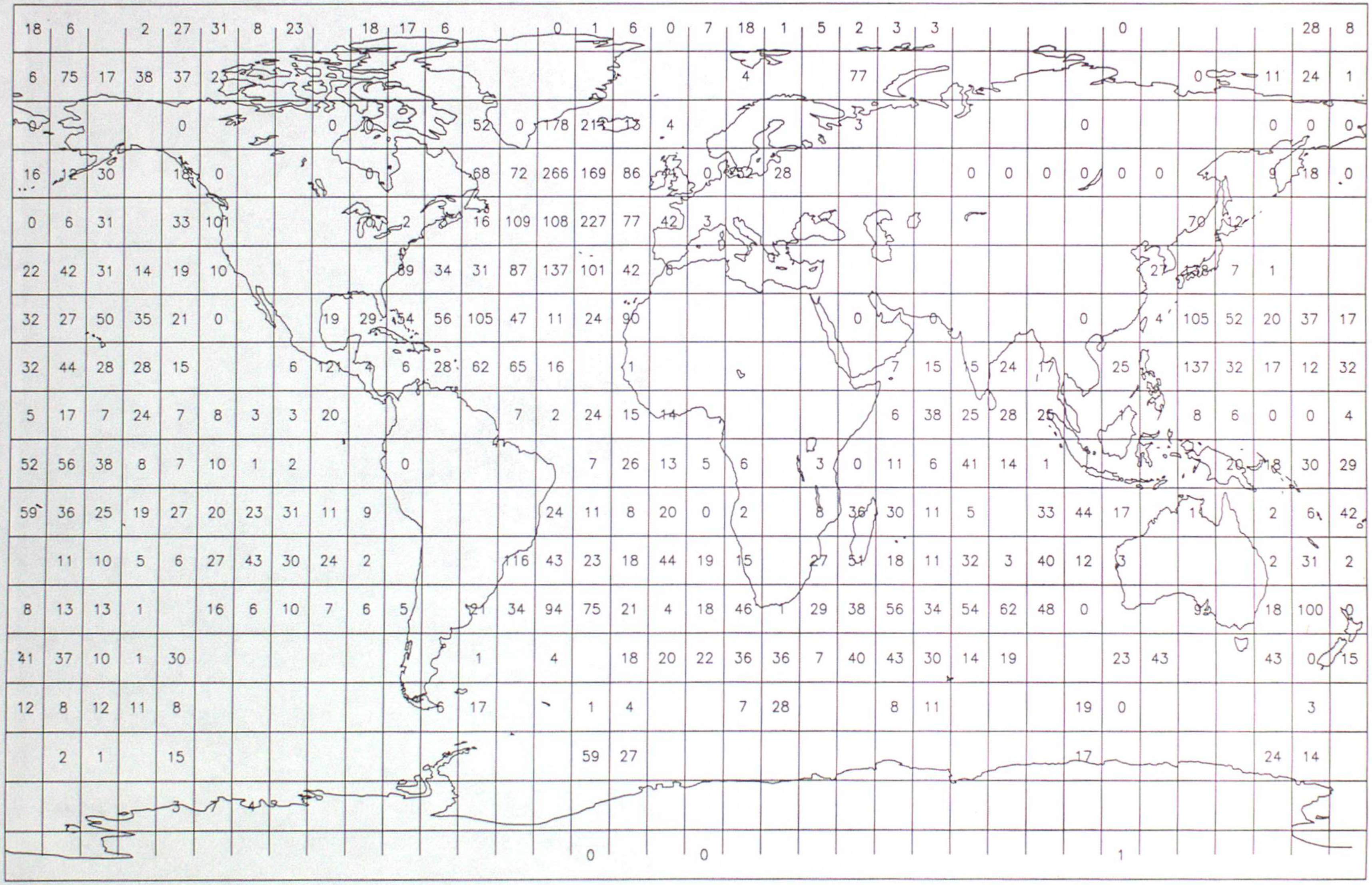
| | | |
|---|---|---|
| 1.\|bias\| | ≥ 4 hPa | (pressure), |
| | ≥ 5 m s$^{-1}$ | (wind speed), |
| | ≥ 30 degrees | (direction). |
| 2.SD | ≥ 6 hPa | (pressure), |
| | ≥ 80 degrees | (direction). |
| 3.PGE | ≥ 25. | |

**N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s$^{-1}$**

| IDENTIFIER | LAT. | LONG. | HOUR | ELEM | LEVEL | NOBS | NGE | PGE | SD | BIAS | RMS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN SEA LEVEL PRESSURE | | | | | | | | | | | |
| 14913 | -42.0 | 60.7 | ALL | P | SUR | 68 | 20 | 29 | 5.0 | -1.3 | 5.1 |
| 17539 | -28.1 | -9.0 | ALL | P | SUR | 186 | 62 | 33 | 1.0 | -0.1 | 1.0 |
| 31960 | -31.4 | -26.3 | ALL | P | SUR | 144 | 144 | 100 | | | |
| 33903 | -38.6 | -4.6 | ALL | P | SUR | 133 | 103 | 77 | 3.0 | 11.9 | 12.3 |
| 46561 | 29.9 | -172.5 | ALL | P | SUR | 229 | 0 | 0 | 0.6 | -5.4 | 5.4 |
| 48534 | 38.8 | -77.0 | ALL | P | SUR | 604 | 33 | 5 | 7.9 | 0.6 | 7.9 |
| 48535 | 38.8 | -77.0 | ALL | P | SUR | 318 | 64 | 20 | 4.4 | -9.2 | 10.2 |
| 48537 | -37.5 | -53.3 | ALL | P | SUR | 592 | 119 | 20 | 7.2 | 2.6 | 7.7 |
| 48538 | 38.8 | -77.0 | ALL | P | SUR | 485 | 40 | 8 | 7.1 | 0.0 | 7.1 |
| 53510 | -28.6 | 37.2 | ALL | P | SUR | 30 | 2 | 7 | 6.8 | 2.6 | 7.3 |
| 62515 | 47.3 | -15.6 | ALL | P | SUR | 550 | 392 | 71 | 4.3 | 7.0 | 8.3 |
| WIND SPEED | | | | | | | | | | | |
| 41502 | 34.3 | 29.8 | ALL | SPEED | SUR | 116 | 0 | 0 | 4.1 | 7.5 | 8.5 |
| 41504 | 33.4 | 42.1 | ALL | SPEED | SUR | 98 | 0 | 0 | 3.3 | 5.7 | 6.6 |
| 41505 | 31.9 | 43.0 | ALL | SPEED | SUR | 109 | 0 | 0 | 3.4 | 6.6 | 7.4 |
| 41506 | 30.9 | 40.3 | ALL | SPEED | SUR | 103 | 0 | 0 | 2.7 | 6.3 | 6.9 |
| 41522 | 31.6 | 51.1 | ALL | SPEED | SUR | 108 | 0 | 0 | 2.6 | 6.3 | 6.8 |
| 52643 | 20.8 | 158.9 | ALL | SPEED | SUR | 32 | 0 | 0 | 7.1 | 6.0 | 9.3 |
| WIND DIRECTION | | | | | | | | | | | |
| 32650 | 3.6 | -70.6 | ALL | DIRN. | SUR | 154 | 0 | 0 | 15.1 | -30.5 | 34.1 |
| 44773 | 48.1 | -30.8 | ALL | DIRN. | SUR | 158 | 0 | 0 | 92.8 | 49.0 | 104.9 |

AVAILABILITY – DRIFTER – AUGUST 2000
MAIN HOURS ONLY
10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS
GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 8841

FIGURE 2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6 75 17 38 37 2 4 77 0 11 24 1
0 0 0 52 0 178 213 13 4 3 0 0 0 0
16 12 30 18 0 0 68 72 266 169 86 0 52 28 0 0 0 0 0 0 9 18 0
0 6 31 33 101 2 16 109 108 227 77 42 3 70 12
22 42 31 14 19 10 89 34 31 87 137 101 42 8 27 138 7 1
32 27 50 35 21 0 19 29 54 56 105 47 11 24 90 0 0 0 4 105 52 20 37 17
32 44 28 28 15 6 121 4 6 28 62 65 16 1 7 15 15 24 17 25 137 32 17 12 32
5 17 7 24 7 8 3 3 20 7 2 24 15 14 6 38 25 28 25 1 8 6 0 0 4
52 56 38 8 7 10 1 2 0 7 26 13 5 6 3 0 11 6 41 14 1 20 18 30 29
59 36 25 19 27 20 23 31 11 9 24 11 8 20 0 2 8 36 30 11 5 33 44 17 11 2 6 42
11 10 5 6 27 43 30 24 2 116 43 23 18 44 19 15 27 51 18 11 32 3 40 12 3 2 31 2
8 13 13 1 16 6 10 7 6 5 21 34 94 75 21 4 18 46 1 29 38 56 34 54 62 48 0 98 18 100 0
41 37 10 1 30 1 4 18 20 22 36 36 7 40 43 30 14 19 23 43 43 0 15
12 8 12 11 8 6 17 1 4 7 28 8 11 19 0 3
2 1 15 59 27 17 24 14
3 7 4
0 0 1

## TABLE 3

## MONITORING OF LAND SURFACE OBSERVATIONS
## MONTHLY SUSPECT LIST - SYNOPS & AUTOSYNOPS
## MONITORING CENTRE: BRACKNELL
## MONTH: August 2000

**Monitoring procedures**

| | | |
|---|---|---|
| **Period** | | :One calendar month. |
| **Data monitored** | | :Reports from each unique identifier for synops & autosynops. |
| **Standard of comparison** | | :Background field from UKMO global model. |
| **Observation times** | | :00, 06, 12, 18 UTC |
| **Elements monitored** | | :Surface pressure (hPa). |
| **Parameters monitored** | :HT(m) | :Station height (in metres) as given in WMO No. 9 Vol A |
| | :RP | :Pressure reporting practice<br>M=mean sea level pressure (hPa) reported.<br>S=Station level pressure reported.<br>8=Geopotential height (m) of 850 hPa surface reported.<br>7=Geopotential height (m) of 700 hPa surface reported. |
| | :NOBS | :Number of observations received excluding duplicates. |
| | :NGE | :Number of observations with gross errors. |
| | :PGE | :Percentage of observations with gross errors. |
| | :%REJ | :Percentage of observations flagged excluding those with gross errors. |
| | :SD | :SD of difference of observations from background values excluding those with gross errors. |
| | :BIAS | :Mean difference of observations from background values excluding those with gross errors. |
| | :RMS | :Root Mean Square difference of observations from background values excluding those with gross errors. |
| **GROSS ERROR LIMIT** | :15 hPa | (pressure) |
| **SELECTION CRITERIA** | :NOBS | ≥ 20 ,and one or more of the following: |
| | 1.\|bias\| | ≥ 4 hPa |
| | 2. SD | ≥ 6 hPa |
| | 3.PGE | ≥ 25. |

N.B. For stn ht ≥ 500m, mslp is that calculated from station level pressure where available.
For stn ht < 500m, mslp is that as reported by the station where available.

### WMO REGION 1:

| STATION | LAT | LONG | HT(M) | RP | NOBS | NGE | PGE | %REJ | SD | BIAS | RMS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 60010 | 28.3N | 16.5W | 2367 | S7 | 73 | 0 | 0 | 5 | 1.3 | -4.7 | 4.9 |
| 60511 | 35.3N | 1.4E | 1127 | S8 | 115 | 72 | 63 | 0 | 0.5 | 14.5 | 14.5 |
| 62056 | 32.8N | 21.8E | 625 | S8 | 88 | 0 | 0 | 92 | 0.8 | -5.7 | 5.8 |
| 63602 | 3.1N | 30.9E | 1204 | S | 64 | 62 | 97 | 0 | 0.2 | 1.7 | 1.7 |
| 63680 | 0.3N | 32.6E | 1144 | S | 33 | 0 | 0 | 3 | 1.8 | -9.6 | 9.8 |
| 63801 | 4.9S | 29.6E | 882 | S8 | 21 | 0 | 0 | 76 | 0.9 | 7.0 | 7.1 |
| 68030 | 18.5S | 25.6E | 1071 | 8 | 65 | 0 | 0 | 0 | 0.9 | 5.1 | 5.2 |
| 68038 | 20.5S | 26.0E | 903 | 8 | 65 | 0 | 0 | 0 | 1.2 | 4.6 | 4.8 |
| 68106 | 23.6S | 15.1E | 407 | S8 | 68 | 31 | 46 | 0 | 1.5 | 0.1 | 1.5 |
| 68338 | 26.9S | 24.6E | 1234 | S8 | 28 | 28 | 100 | 0 |  |  |  |
| 68396 | 26.5S | 31.3E | 641 | S8 | 43 | 0 | 0 | 0 | 0.8 | 4.3 | 4.4 |

### WMO REGION 2:

| STATION | LAT | LONG | HT(M) | RP | NOBS | NGE | PGE | %REJ | SD | BIAS | RMS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 30320 | 56.9N | 105.7E | 669 | MS | 120 | 59 | 49 | 0 | 1.6 | 0.5 | 1.7 |
| 40726 | 36.8N | 45.7E | 1384 | MS | 99 | 0 | 0 | 16 | 1.3 | 4.1 | 4.3 |
| 40741 | 36.6N | 61.2E | 235 | MS | 105 | 0 | 0 | 0 | 0.8 | -4.0 | 4.1 |
| 41254 | 23.1N | 57.7E | 1755 | S8 | 66 | 66 | 100 | 0 |  |  |  |
| 41396 | 16.0N | 48.9E | 700 | MS | 38 | 0 | 0 | 3 | 1.6 | 6.3 | 6.5 |
| 41466 | 13.7N | 44.1E | 1402 | 8 | 39 | 0 | 0 | 0 | 0.8 | -6.3 | 6.4 |
| 41696 | 29.0N | 66.6E | 2015 | S | 47 | 29 | 62 | 4 | 1.6 | -0.9 | 1.8 |
| 44416 | 28.6N | 81.6E | 720 | MS | 62 | 1 | 2 | 0 | 1.2 | 4.8 | 4.9 |
| 47022 | 40.8N | 128.2E | 1200 | S | 40 | 0 | 0 | 0 | 0.8 | 4.6 | 4.7 |
| 51495 | 43.5N | 91.6E | 874 | M | 122 | 0 | 0 | 0 | 0.9 | 7.0 | 7.1 |
| 52602 | 38.8N | 93.4E | 2734 | S | 123 | 0 | 0 | 0 | 1.0 | -5.2 | 5.3 |
| 52955 | 35.6N | 100.8E | 3201 | S | 123 | 0 | 0 | 0 | 0.8 | 12.9 | 12.9 |
| 56146 | 31.6N | 100.0E | 339 | S | 122 | 122 | 100 | 0 |  |  |  |
| 56444 | 28.5N | 98.9E | 3488 | S | 118 | 56 | 47 | 38 | 0.6 | 13.4 | 13.4 |
| 56462 | 29.0N | 101.5E | 2994 | S | 123 | 0 | 0 | 0 | 1.0 | 9.2 | 9.3 |

### WMO REGION 3:

| STATION | LAT | LONG | HT(M) | RP | NOBS | NGE | PGE | %REJ | SD | BIAS | RMS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 80099 | 7.1N | 70.7W | 128 | MS | 48 | 0 | 0 | 2 | 1.3 | -6.5 | 6.6 |
| 82326 | 3.8S | 62.1W | 48 | MS | 90 | 0 | 0 | 0 | 1.2 | 5.0 | 5.1 |
| 82927 | 9.9S | 58.3W | 250 | MS | 52 | 0 | 0 | 17 | 3.9 | -8.2 | 9.1 |
| 83235 | 12.4S | 46.4W | 604 | MS | 90 | 1 | 1 | 0 | 1.0 | 6.4 | 6.5 |
| 83332 | 14.1S | 46.4W | 826 | MS | 87 | 10 | 11 | 1 | 0.9 | 13.4 | 13.4 |
| 83408 | 14.3S | 43.8W | 447 | MS | 84 | 0 | 0 | 0 | 0.8 | 10.8 | 10.8 |
| 83488 | 17.8S | 42.9W | 1097 | MS | 89 | 89 | 100 | 0 |  |  |  |
| 83531 | 18.6S | 46.5W | 940 | MS | 85 | 0 | 0 | 0 | 1.1 | -7.3 | 7.4 |
| 83587 | 19.9S | 43.9W | 850 | MS | 89 | 0 | 0 | 1 | 1.0 | -7.0 | 7.1 |
| 83773 | 23.1S | 48.9W | 793 | MS | 88 | 0 | 0 | 1 | 0.9 | -10.6 | 10.6 |
| 83836 | 25.5S | 50.6W | 837 | MS | 89 | 0 | 0 | 0 | 0.8 | -5.3 | 5.4 |
| 83953 | 30.9S | 55.5W | 231 | MS | 89 | 4 | 4 | 3 | 0.9 | -11.5 | 11.5 |
| 84377 | 3.8S | 73.3W | 125 | MS | 95 | 0 | 0 | 0 | 1.2 | 4.5 | 4.7 |
| 84401 | 5.2S | 80.6W | 49 | MS | 96 | 0 | 0 | 0 | 0.9 | 4.1 | 4.2 |
| 84425 | 5.9S | 76.1W | 179 | MS | 71 | 1 | 1 | 0 | 1.2 | 4.5 | 4.7 |
| 84455 | 6.5S | 76.4W | 281 | M | 68 | 0 | 0 | 0 | 1.2 | 4.8 | 4.9 |
| 84472 | 7.1S | 78.5W | 2620 | S | 46 | 0 | 0 | 2 | 1.6 | -5.8 | 6.0 |
| 84474 | 7.2S | 76.7W | 350 | S | 72 | 0 | 0 | 0 | 1.2 | 9.3 | 9.4 |
| 84542 | 9.4S | 77.6W | 2750 | S | 22 | 0 | 0 | 5 | 1.2 | 4.4 | 4.6 |
| 84686 | 13.6S | 72.0W | 3248 | S | 96 | 0 | 0 | 0 | 1.0 | -5.5 | 5.6 |
| 84688 | 13.7S | 73.4W | 3444 | S | 43 | 2 | 5 | 0 | 0.8 | -13.4 | 13.4 |
| 84720 | 14.9S | 75.0W | 567 | MS | 49 | 0 | 0 | 0 | 0.9 | 4.9 | 5.0 |
| 84782 | 18.1S | 70.3W | 468 | MS | 69 | 0 | 0 | 0 | 1.2 | 8.3 | 8.4 |
| 85140 | 14.3S | 67.4W | 140 | MS | 59 | 1 | 2 | 49 | 1.8 | 5.5 | 5.8 |
| 85141 | 14.5S | 67.6W | 204 | MS | 59 | 1 | 2 | 2 | 1.6 | 4.7 | 5.0 |

WMO REGION 3:

| STATION | LAT | LONG | HT(M) | RP | NOBS | NGE | PGE | %REJ | SD | BIAS | RMS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 85264 | 18.5S | 64.1W | 1998 | S | 53 | 52 | 98 | 0 | 0.0 | -14.0 | 14.0 |
| 85312 | 19.8S | 63.9W | 992 | S | 43 | 1 | 2 | 2 | 1.5 | -9.4 | 9.5 |
| 85406 | 18.3S | 70.3W | 55 | M | 120 | 0 | 0 | 1 | 1.3 | 5.6 | 5.7 |
| 85432 | 22.5S | 68.9W | 2320 | S8 | 87 | 0 | 0 | 0 | 0.7 | 5.1 | 5.1 |

WMO REGION 4:

| STATION | LAT | LONG | HT(M) | RP | NOBS | NGE | PGE | %REJ | SD | BIAS | RMS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 70194 | 66.6N | 145.3W | 431 | S | 89 | 89 | 100 | 0 | | | |
| 72376 | 36.8N | 108.2W | 1677 | M | 117 | 0 | 0 | 32 | 1.6 | 4.8 | 5.1 |
| 76118 | 30.4N | 109.7W | 1040 | MS | 35 | 0 | 0 | 0 | 0.8 | -10.1 | 10.1 |
| 76658 | 19.2N | 103.7W | 494 | MS | 39 | 0 | 0 | 0 | 0.8 | 6.5 | 6.5 |
| 76773 | 17.8N | 97.8W | 1650 | MS | 41 | 0 | 0 | 0 | 0.8 | 4.8 | 4.9 |

WMO REGION 5:

| STATION | LAT | LONG | HT(M) | RP | NOBS | NGE | PGE | %REJ | SD | BIAS | RMS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 91163 | 21.9N | 159.6W | 7 | 8 | 356 | 356 | 100 | 0 | | | |
| 92010 | 6.1S | 145.4E | 1587 | M | 51 | 0 | 0 | 0 | 0.8 | 9.8 | 9.8 |
| 92068 | 10.0S | 149.4E | 1005 | MS | 53 | 0 | 0 | 2 | 1.5 | -4.7 | 4.9 |
| 94868 | 37.8S | 145.0E | 35 | MS | 121 | 0 | 0 | 0 | 0.6 | 10.4 | 10.4 |
| 97378 | 10.7S | 123.1E | 1 | MS | 30 | 30 | 100 | 0 | | | |

WMO REGION 6:

| STATION | LAT | LONG | HT(M) | RP | NOBS | NGE | PGE | %REJ | SD | BIAS | RMS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 01245 | 62.8N | 9.7E | 671 | MS | 90 | 0 | 0 | 1 | 1.3 | 7.6 | 7.7 |
| 04416 | 72.6N | 38.4W | 3202 | S | 94 | 5 | 5 | 1 | 1.5 | -4.5 | 4.7 |
| 06685 | 47.0N | 9.1E | 515 | MS | 61 | 0 | 0 | 85 | 1.2 | 4.5 | 4.7 |
| 08568 | 40.4N | 7.6W | 1380 | S8 | 368 | 71 | 19 | 0 | 7.3 | -3.3 | 8.0 |
| 10557 | 50.5N | 11.1E | 845 | S8 | 371 | 371 | 100 | 0 | | | |
| 12140 | 54.4N | 18.7E | 2 | MS | 122 | 0 | 0 | 0 | 0.5 | 7.7 | 7.7 |
| 13269 | 44.3N | 19.9E | 176 | MS | 120 | 0 | 0 | 1 | 0.9 | 7.5 | 7.6 |
| 14528 | 44.8N | 15.9E | 246 | MS | 61 | 0 | 0 | 77 | 1.8 | 4.1 | 4.5 |
| 14554 | 44.9N | 18.4E | 140 | S | 59 | 1 | 2 | 2 | 0.7 | -12.4 | 12.4 |
| 14650 | 43.8N | 18.0E | 972 | S | 61 | 61 | 100 | 46 | | | |
| 16470 | 36.8N | 12.0E | 191 | MS | 87 | 0 | 0 | 0 | 0.6 | -4.0 | 4.0 |
| 17042 | 41.4N | 41.4E | 33 | M | 113 | 0 | 0 | 0 | 1.0 | 4.3 | 4.4 |
| 17092 | 39.8N | 39.5E | 1218 | S8 | 122 | 0 | 0 | 0 | 1.4 | 6.3 | 6.5 |
| 37788 | 42.1N | 44.4E | 854 | M | 112 | 0 | 0 | 67 | 2.5 | -5.3 | 5.9 |

ANTARCTIC:

| STATION | LAT | LONG | HT(M) | RP | NOBS | NGE | PGE | %REJ | SD | BIAS | RMS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 89108 | 89.0S | 1.0W | 2755 | S | 284 | 0 | 0 | 0 | 1.2 | 4.3 | 4.5 |
| 89208 | 90.0S | 0.0W | 2835 | M | 25 | 9 | 36 | 0 | 1.7 | 2.8 | 3.3 |
| 89264 | 71.4S | 68.9W | 780 | S | 256 | 0 | 0 | 0 | 2.0 | 7.5 | 7.8 |
| 89266 | 72.2S | 60.3W | 91 | S | 254 | 100 | 39 | 0 | 6.8 | -6.0 | 9.1 |
| 89272 | 75.0S | 70.8W | 1395 | S | 242 | 242 | 100 | 0 | | | |
| 89612 | 66.3S | 110.8E | 390 | S | 25 | 17 | 68 | 0 | 2.6 | -2.2 | 3.4 |
| 89661 | 73.1S | 169.6E | 200 | S | 22 | 1 | 5 | 59 | 2.2 | 9.7 | 9.9 |
| 89744 | 74.0S | 43.0E | 3353 | S | 263 | 0 | 0 | 0 | 0.7 | 8.1 | 8.1 |
| 89769 | 78.5S | 168.4E | 50 | S | 384 | 383 | 100 | 0 | | | |
| 89774 | 73.4S | 76.8E | 2563 | S | 250 | 0 | 0 | 0 | 1.0 | 4.2 | 4.3 |
| 89847 | 67.6S | 146.0E | 30 | S | 242 | 10 | 4 | 1 | 1.9 | -10.3 | 10.5 |

## TABLE 4A

## MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS
## MONITORING CENTRE: BRACKNELL
## MONTH: August 2000

**Monitoring procedures**

**Period** :One calendar month.

**Data monitored** :Statistics for each airline carrier.

**Area monitored** :90°N - 90°S, 180°W - 180°E.

**Standard of comparison** :Background field from UKMO global model.

**Observation times** :All hours combined.

**Level(s) monitored** :300.0 - 150.0 hPa

**Elements monitored** :TEMP in °C ; WIND in m s$^{-1}$

**Parameters monitored**

:N REP. :Number of observations received excluding duplicates.

:PG :Percentage of observations with gross errors.

:PR :Percentage of observations rejected by quality control including rejections from the duplicate check.

:PC :Percentage of observations with calm winds.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.

:BIAS :Mean difference of observations from background values excluding those with gross errors in Temperature & Wind Speed.

**GROSS ERROR LIMITS** :10.0 °C ; 60 m s$^{-1}$ Vector Wind

**SELECTION CRITERIA** :N REP ≥ 20

**NB:** All American ACARS data are grouped together and statistics are shown at the bottom of the table as "US ACARS". All ADS reports are similarly grouped together.

| | TEMPERATURE | | | | | WIND | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| IDENT. | N.REP. | PG | PR | RMS | BIAS | N.REP. | PG | PR | PC | RMS | BIAS |
| AAA | 33 | 0 | 24 | 0.9 | 0.1 | 33 | 0 | 24 | 0 | 6.4 | 1.7 |
| AAH | 894 | 0 | 37 | 1.1 | 0.4 | 889 | 0 | 38 | 0 | 6.2 | 1.0 |
| AAL | 7220 | 0 | 19 | 1.4 | 0.1 | 7204 | 0 | 19 | 0 | 7.1 | 0.9 |
| AAR | 2096 | 0 | 6 | 1.5 | -0.4 | 2076 | 0 | 7 | 0 | 7.3 | 0.5 |
| ACA | 1960 | 0 | 2 | 1.7 | 0.1 | 2001 | 0 | 3 | 0 | 6.7 | 0.9 |
| ACI | 39 | 0 | 56 | 1.7 | 0.3 | 39 | 0 | 56 | 0 | 7.6 | 2.7 |
| AEA | 800 | 1 | 3 | 1.7 | 0.5 | 801 | 0 | 4 | 0 | 7.6 | 1.2 |
| AEL | 577 | 0 | 9 | 1.4 | 0.0 | 574 | 0 | 10 | 0 | 6.7 | 0.9 |
| AEY | 130 | 2 | 4 | 2.1 | 1.5 | 131 | 0 | 2 | 0 | 6.8 | 1.3 |
| AFL | 580 | 0 | 4 | 2.1 | 0.4 | 574 | 0 | 4 | 0 | 7.2 | 0.8 |
| AFR | 1936 | 0 | 5 | 1.6 | 0.0 | 1940 | 0 | 6 | 0 | 7.0 | 0.9 |
| AIH | 324 | 1 | 4 | 1.7 | 0.2 | 319 | 0 | 5 | 0 | 7.9 | 1.5 |
| AJM | 249 | 0 | 2 | 1.3 | 0.1 | 258 | 0 | 4 | 0 | 8.4 | 1.3 |
| AMM | 89 | 2 | 10 | 2.1 | 1.2 | 84 | 0 | 8 | 0 | 6.8 | 0.5 |
| AMT | 1312 | 1 | 45 | 2.6 | 1.7 | 1309 | 0 | 43 | 0 | 5.8 | 0.6 |
| AMX | 255 | 2 | 6 | 1.9 | 0.4 | 260 | 0 | 5 | 0 | 9.3 | 1.4 |
| ANA | 1035 | 0 | 10 | 1.4 | 0.7 | 1019 | 0 | 11 | 0 | 6.9 | 1.0 |
| ANG | 22 | 0 | 9 | 1.2 | -0.4 | 22 | 0 | 9 | 0 | 4.5 | 0.2 |
| ANZ | 6208 | 0 | 35 | 1.4 | 0.1 | 6194 | 0 | 35 | 0 | 6.9 | 0.5 |
| AOM | 1156 | 1 | 9 | 1.6 | 0.8 | 1164 | 0 | 9 | 0 | 6.9 | 1.0 |
| ARG | 126 | 5 | 23 | 2.8 | 0.5 | 124 | 0 | 19 | 0 | 12.2 | 0.0 |
| AUT | 25 | 4 | 12 | 3.6 | -2.6 | 24 | 0 | 17 | 0 | 17.1 | -2.6 |
| AVA | 583 | 1 | 4 | 1.9 | 0.8 | 586 | 0 | 5 | 0 | 8.7 | 1.4 |
| AVN | 151 | 1 | 51 | 0.9 | 0.2 | 151 | 1 | 51 | 0 | 6.1 | 0.1 |
| AXF | 74 | 0 | 27 | 1.4 | -0.4 | 74 | 0 | 28 | 0 | 9.6 | 0.9 |
| AZA | 781 | 0 | 6 | 2.2 | 0.5 | 783 | 0 | 6 | 0 | 8.1 | 1.0 |
| BAL | 296 | 1 | 7 | 1.3 | -0.3 | 289 | 0 | 7 | 0 | 6.7 | 0.8 |
| BAW | 1810 | 0 | 5 | 1.9 | 0.4 | 1784 | 0 | 7 | 0 | 7.3 | 1.2 |
| BBB | 34 | 0 | 0 | 1.7 | -0.2 | 33 | 0 | 0 | 0 | 6.1 | 0.1 |
| BLC | 41 | 0 | 37 | 2.6 | 0.7 | 44 | 0 | 34 | 0 | 9.9 | 1.0 |
| BLX | 33 | 0 | 3 | 1.5 | -0.8 | 34 | 0 | 3 | 0 | 5.9 | 0.4 |
| BWA | 363 | 1 | 5 | 1.9 | 1.5 | 357 | 0 | 7 | 0 | 8.1 | 1.4 |
| CAL | 311 | 0 | 7 | 1.5 | 0.1 | 316 | 0 | 8 | 0 | 7.3 | -0.1 |
| CCA | 424 | 2 | 100 | 2.2 | 0.5 | 460 | 0 | 100 | 0 | 9.2 | 0.3 |
| CDN | 2627 | 0 | 11 | 1.6 | 0.0 | 2574 | 0 | 12 | 0 | 7.3 | 0.8 |
| CES | 439 | 1 | 4 | 1.4 | 0.3 | 452 | 0 | 100 | 0 | 6.4 | 0.7 |
| CFG | 1154 | 0 | 3 | 1.6 | -0.8 | 1145 | 0 | 3 | 0 | 6.6 | 0.8 |
| CLX | 405 | 0 | 7 | 1.8 | -0.4 | 411 | 0 | 9 | 0 | 7.5 | 0.5 |
| CMI | 294 | 1 | 4 | 2.0 | 0.7 | 289 | 0 | 3 | 0 | 9.6 | 1.3 |
| CMM | 678 | 0 | 7 | 1.6 | 0.0 | 680 | 0 | 6 | 0 | 5.6 | 0.5 |
| COA | 1664 | 1 | 25 | 1.3 | 0.2 | 1654 | 0 | 27 | 0 | 9.0 | 1.2 |
| CPA | 57 | 2 | 9 | 1.9 | 0.8 | 70 | 1 | 10 | 0 | 13.9 | -2.2 |
| CRL | 826 | 1 | 6 | 1.8 | 0.9 | 823 | 0 | 6 | 0 | 6.5 | 1.2 |
| CSN | 101 | 1 | 10 | 1.8 | 0.3 | 104 | 0 | 10 | 0 | 10.7 | 0.0 |
| CTB | 248 | 0 | 4 | 1.5 | 0.2 | 244 | 0 | 4 | 0 | 6.4 | 1.0 |
| CUB | 355 | 1 | 6 | 2.6 | 1.8 | 352 | 0 | 4 | 0 | 8.8 | 1.3 |
| DAL | 4393 | 0 | 32 | 1.4 | 0.2 | 4464 | 0 | 32 | 0 | 6.0 | 0.6 |
| DBY | 628 | 1 | 4 | 1.4 | -0.4 | 636 | 0 | 4 | 0 | 6.9 | 1.0 |
| DCS | 45 | 0 | 0 | 1.5 | 0.3 | 44 | 0 | 0 | 0 | 4.3 | -0.6 |
| DLH | 1908 | 0 | 5 | 1.7 | 0.0 | 1881 | 0 | 5 | 0 | 7.2 | 0.9 |
| EEZ | 247 | 1 | 100 | 1.7 | 1.0 | 250 | 0 | 10 | 0 | 6.5 | 1.4 |
| EIA | 315 | 1 | 39 | 1.6 | 0.6 | 312 | 0 | 40 | 0 | 8.8 | 0.0 |
| EIN | 45 | 2 | 4 | 1.6 | 0.4 | 46 | 0 | 4 | 0 | 6.9 | 0.2 |
| ELY | 201 | 0 | 3 | 1.6 | 0.0 | 206 | 0 | 3 | 0 | 6.9 | 0.8 |
| ETH | 44 | 0 | 18 | 1.4 | 0.1 | 46 | 0 | 17 | 0 | 5.7 | 1.6 |
| EVA | 1047 | 0 | 4 | 1.4 | -0.3 | 1051 | 0 | 5 | 0 | 6.9 | 0.3 |
| EWW | 83 | 1 | 5 | 1.4 | 0.0 | 83 | 0 | 2 | 0 | 6.3 | 0.3 |
| FDX | 1898 | 0 | 17 | 1.4 | 0.5 | 1905 | 0 | 17 | 0 | 6.7 | 0.8 |
| FIN | 428 | 0 | 2 | 1.7 | 0.3 | 420 | 0 | 3 | 0 | 7.2 | 0.8 |

|  | TEMPERATURE |  |  |  |  | WIND |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|
| IDENT. | N.REP. | PG | PR | RMS | BIAS | N.REP. | PG | PR | PC | RMS | BIAS |
| FJI | 664 | 2 | 48 | 1.4 | 0.4 | 643 | 0 | 47 | 0 | 8.8 | 0.2 |
| FOM | 571 | 1 | 30 | 1.5 | 0.1 | 570 | 0 | 30 | 0 | 6.2 | 0.6 |
| FWQ | 77 | 1 | 58 | 1.1 | 0.4 | 76 | 0 | 58 | 0 | 5.1 | 0.5 |
| GAF | 109 | 1 | 5 | 1.4 | -0.5 | 109 | 0 | 7 | 0 | 9.8 | 1.3 |
| GCO | 183 | 1 | 5 | 1.6 | 0.3 | 192 | 0 | 100 | 0 | 15.5 | 3.7 |
| GHA | 148 | 1 | 3 | 1.5 | -0.2 | 146 | 0 | 3 | 0 | 9.6 | 2.3 |
| GRL | 81 | 0 | 4 | 2.0 | -0.2 | 79 | 0 | 3 | 0 | 6.8 | 0.7 |
| GTI | 390 | 1 | 6 | 1.6 | -0.2 | 401 | 0 | 8 | 0 | 8.7 | 0.4 |
| HAL | 4685 | 0 | 38 | 1.3 | 0.3 | 4644 | 0 | 38 | 0 | 8.3 | 1.6 |
| HLF | 113 | 0 | 3 | 1.6 | -0.2 | 111 | 0 | 2 | 0 | 6.0 | 1.2 |
| HRH | 211 | 1 | 64 | 1.0 | -0.1 | 211 | 1 | 64 | 0 | 11.6 | 0.5 |
| HZM | 25 | 0 | 4 | 4.5 | 4.2 | 25 | 0 | 4 | 0 | 10.0 | 2.6 |
| IBE | 3110 | 1 | 8 | 1.7 | 0.7 | 3047 | 0 | 8 | 0 | 7.7 | 1.3 |
| ICE | 1255 | 0 | 2 | 1.6 | 0.2 | 1224 | 0 | 4 | 0 | 7.5 | 1.0 |
| IWD | 303 | 0 | 2 | 1.0 | -0.2 | 300 | 0 | 4 | 0 | 7.8 | 2.2 |
| JAA | 70 | 3 | 13 | 2.2 | 0.6 | 63 | 0 | 8 | 0 | 7.1 | 0.9 |
| JAL | 7652 | 0 | 4 | 1.4 | 0.2 | 7551 | 0 | 4 | 0 | 6.5 | 0.8 |
| JAZ | 775 | 1 | 5 | 1.7 | 1.3 | 766 | 0 | 4 | 0 | 6.4 | 0.6 |
| JKK | 360 | 1 | 9 | 1.5 | 0.1 | 323 | 0 | 9 | 0 | 8.0 | 0.6 |
| JMC | 224 | 0 | 5 | 1.5 | 1.0 | 209 | 0 | 7 | 0 | 8.1 | 0.8 |
| KAL | 4304 | 0 | 7 | 1.5 | -0.1 | 4271 | 0 | 7 | 0 | 6.9 | 0.6 |
| KIW | 27 | 4 | 59 | 3.7 | 3.1 | 27 | 0 | 56 | 0 | 7.0 | -1.0 |
| KLM | 2662 | 0 | 10 | 1.5 | 0.3 | 2635 | 0 | 11 | 0 | 7.1 | 0.8 |
| LAN | 112 | 1 | 10 | 2.6 | 0.5 | 113 | 0 | 12 | 0 | 11.5 | 1.8 |
| LAP | 62 | 2 | 29 | 1.8 | 0.9 | 62 | 0 | 27 | 0 | 8.2 | 0.5 |
| LDA | 136 | 1 | 4 | 1.4 | 0.1 | 135 | 1 | 4 | 0 | 7.5 | 0.8 |
| LDI | 825 | 0 | 100 | 1.4 | -0.4 | 828 | 0 | 5 | 0 | 6.9 | 0.3 |
| LIB | 436 | 2 | 5 | 1.7 | 1.0 | 436 | 0 | 5 | 0 | 7.3 | 1.2 |
| LOB | 24 | 21 | 50 | 2.6 | -2.4 | 21 | 0 | 43 | 0 | 7.6 | -2.0 |
| LOT | 182 | 0 | 3 | 2.0 | -1.2 | 180 | 1 | 7 | 0 | 7.7 | 0.1 |
| LPR | 31 | 3 | 13 | 2.1 | 1.0 | 31 | 0 | 13 | 0 | 11.5 | 1.2 |
| LTU | 834 | 0 | 4 | 1.6 | -0.2 | 826 | 0 | 4 | 0 | 6.5 | 0.6 |
| LXJ | 23 | 4 | 57 | 0.6 | -0.2 | 25 | 0 | 56 | 0 | 4.6 | 1.2 |
| MAH | 22 | 0 | 0 | 1.8 | -0.2 | 22 | 0 | 5 | 0 | 11.9 | 1.9 |
| MAS | 579 | 0 | 3 | 1.5 | 0.5 | 588 | 0 | 4 | 0 | 5.9 | 0.4 |
| MMZ | 178 | 2 | 11 | 2.4 | 1.5 | 174 | 0 | 11 | 0 | 8.0 | 1.2 |
| MON | 111 | 0 | 5 | 1.5 | 0.3 | 108 | 0 | 6 | 0 | 7.4 | 1.3 |
| MPD | 594 | 1 | 6 | 1.6 | 0.1 | 583 | 0 | 6 | 0 | 7.2 | 1.1 |
| MPH | 999 | 0 | 3 | 1.7 | -0.6 | 994 | 0 | 3 | 0 | 6.6 | 0.9 |
| NCA | 559 | 1 | 4 | 2.1 | 0.4 | 541 | 0 | 3 | 0 | 7.3 | 0.7 |
| NVR | 20 | 0 | 5 | 2.0 | -0.2 | 20 | 0 | 10 | 0 | 8.9 | -0.8 |
| NWA | 12092 | 0 | 9 | 1.6 | 0.6 | 11962 | 0 | 9 | 0 | 7.2 | 0.6 |
| OAE | 533 | 0 | 44 | 1.4 | -0.4 | 532 | 0 | 43 | 0 | 6.7 | 1.1 |
| PAC | 442 | 2 | 31 | 1.7 | 0.0 | 442 | 0 | 31 | 0 | 8.6 | 0.3 |
| PAL | 1365 | 0 | 5 | 1.2 | 0.2 | 1304 | 0 | 6 | 0 | 7.3 | 0.6 |
| PAO | 505 | 1 | 61 | 1.5 | 0.0 | 502 | 0 | 61 | 0 | 6.8 | 1.3 |
| PUA | 25 | 4 | 48 | 2.8 | 0.2 | 26 | 0 | 42 | 0 | 16.5 | 1.2 |
| QFA | 4494 | 0 | 52 | 1.3 | 0.3 | 4477 | 0 | 53 | 0 | 6.5 | 0.3 |
| RAF | 80 | 0 | 1 | 2.1 | 1.0 | 80 | 0 | 1 | 0 | 8.8 | 1.8 |
| RAM | 142 | 1 | 4 | 1.4 | -0.6 | 142 | 0 | 6 | 0 | 7.5 | 0.9 |
| RCH | 240 | 0 | 17 | 2.6 | 1.6 | 219 | 0 | 18 | 0 | 8.9 | 1.5 |
| RJA | 65 | 0 | 0 | 1.6 | 0.1 | 67 | 0 | 6 | 0 | 11.5 | 0.7 |
| RKA | 122 | 2 | 4 | 1.3 | -0.4 | 118 | 0 | 3 | 0 | 6.5 | 1.0 |
| ROY | 273 | 0 | 5 | 2.0 | -0.4 | 271 | 0 | 100 | 0 | 8.7 | 1.4 |
| RRR | 91 | 0 | 4 | 1.5 | 0.3 | 94 | 0 | 7 | 0 | 7.9 | 0.2 |
| RYN | 608 | 0 | 43 | 1.4 | 0.8 | 605 | 0 | 43 | 0 | 4.6 | 0.2 |
| RZO | 383 | 1 | 5 | 1.4 | -0.4 | 380 | 0 | 6 | 0 | 9.0 | 1.0 |
| SAA | 423 | 1 | 3 | 1.3 | -0.1 | 415 | 0 | 3 | 0 | 7.0 | 1.1 |
| SAS | 1747 | 0 | 29 | 1.6 | -0.3 | 1737 | 0 | 29 | 0 | 6.7 | 0.6 |

|  | TEMPERATURE |  |  |  |  | WIND |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|
| IDENT. | N.REP. | PG | PR | RMS | BIAS | N.REP. | PG | PR | PC | RMS | BIAS |
| SIA | 621 | 1 | 3 | 1.4 | 0.3 | 619 | 0 | 3 | 0 | 6.0 | 0.7 |
| SLR | 284 | 0 | 7 | 1.4 | -0.8 | 281 | 0 | 8 | 0 | 6.3 | 0.9 |
| SVA | 144 | 0 | 3 | 1.8 | -0.3 | 149 | 0 | 3 | 0 | 6.1 | 0.9 |
| SWR | 93 | 0 | 5 | 1.5 | 0.5 | 95 | 1 | 13 | 0 | 9.9 | 4.0 |
| TAM | 24 | 4 | 21 | 2.8 | 0.7 | 27 | 4 | 30 | 0 | 15.3 | 3.1 |
| TAP | 704 | 2 | 7 | 1.5 | 0.0 | 703 | 0 | 8 | 0 | 8.5 | 1.0 |
| TBA | 46 | 0 | 33 | 1.9 | 0.7 | 47 | 0 | 32 | 0 | 12.4 | 3.6 |
| TCU | 161 | 1 | 4 | 1.4 | -0.4 | 160 | 0 | 4 | 0 | 7.3 | 1.4 |
| THA | 286 | 0 | 6 | 1.6 | 0.0 | 288 | 0 | 6 | 0 | 7.7 | 0.8 |
| THT | 84 | 1 | 17 | 1.9 | 0.2 | 81 | 0 | 16 | 0 | 7.0 | 1.4 |
| TPA | 29 | 3 | 3 | 1.1 | 0.1 | 29 | 0 | 0 | 0 | 6.8 | 0.9 |
| TSC | 347 | 1 | 4 | 1.9 | 0.5 | 350 | 0 | 5 | 0 | 9.2 | 0.4 |
| TWA | 2149 | 0 | 23 | 1.3 | 0.2 | 2120 | 0 | 23 | 0 | 6.4 | 1.0 |
| UAL | 136424 | 0 | 100 | 1.0 | -0.1 | 136281 | 0 | 100 | 0 | 4.7 | 0.4 |
| UPS | 1629 | 0 | 23 | 1.5 | 0.4 | 1650 | 0 | 24 | 0 | 6.4 | 0.8 |
| USA | 239 | 1 | 2 | 1.3 | 0.1 | 205 | 0 | 3 | 0 | 7.6 | 1.3 |
| VIR | 698 | 1 | 4 | 1.7 | 0.0 | 695 | 1 | 5 | 0 | 8.0 | 1.3 |
| VKG | 65 | 3 | 11 | 2.1 | 0.3 | 65 | 0 | 9 | 0 | 9.6 | 0.8 |
| VPB | 20 | 0 | 35 | 2.1 | -0.8 | 20 | 0 | 35 | 0 | 6.8 | 1.3 |
| VRG | 396 | 1 | 32 | 2.4 | 0.4 | 406 | 1 | 100 | 0 | 13.0 | 2.4 |
| VVJ | 22 | 0 | 36 | 2.1 | -0.5 | 22 | 0 | 36 | 0 | 5.2 | 3.0 |
| VVR | 37 | 0 | 32 | 2.8 | 1.1 | 36 | 0 | 28 | 0 | 7.1 | 1.3 |
| WOA | 178 | 1 | 6 | 1.3 | 0.6 | 195 | 0 | 8 | 0 | 7.5 | 0.7 |
| XBS | 35 | 0 | 40 | 1.0 | 0.4 | 35 | 0 | 40 | 0 | 4.2 | -0.5 |
| YSS | 202 | 1 | 4 | 1.4 | 0.7 | 200 | 0 | 4 | 0 | 6.7 | 2.0 |
| AN | 22219 | 0 | 17 | 1.2 | 0.3 | 22219 | 0 | 17 | 0 | 5.3 | 0.4 |
| AR | 2097 | 3 | 100 | 3.0 | 2.8 | 2096 | 0 | 9 | 0 | 8.4 | 1.5 |
| EU | 93742 | 0 | 30 | 1.2 | 0.3 | 93740 | 0 | 29 | 0 | 4.9 | 0.4 |
| KL | 8430 | 0 | 8 | 1.4 | 0.8 | 8396 | 0 | 8 | 0 | 5.5 | 0.8 |
| LH | 2529 | 0 | 6 | 1.8 | 1.3 | 2507 | 0 | 6 | 0 | 5.4 | 0.9 |
| MK | 4556 | 0 | 5 | 1.7 | 1.3 | 4501 | 0 | 7 | 0 | 10.7 | 1.7 |
| NZ | 2839 | 0 | 10 | 1.3 | -0.1 | 2838 | 0 | 12 | 0 | 5.1 | 0.3 |
| QF | 29221 | 0 | 12 | 1.2 | 0.7 | 29218 | 0 | 12 | 0 | 5.3 | 0.6 |
| SA | 1962 | 0 | 7 | 1.8 | 1.3 | 1953 | 0 | 7 | 0 | 6.4 | 0.6 |
| SV | 1421 | 1 | 100 | 3.0 | 2.8 | 1409 | 0 | 4 | 0 | 6.1 | 0.4 |
| WA | 381 | 9 | 15 | 1.7 | 0.8 | 372 | 6 | 20 | 0 | 8.1 | 0.3 |
| XX | 4335 | 2 | 8 | 1.3 | 0.4 | 4938 | 0 | 9 | 0 | 9.0 | 1.2 |
| N | 725 | 1 | 24 | 2.4 | 1.0 | 741 | 0 | 24 | 0 | 7.6 | 1.5 |
| US ACARS | 594889 | 0 | 46 | 1.1 | 0.4 | 594905 | 0 | 46 | 0 | 5.2 | 0.7 |

# TABLE 4B

## MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS
## MONITORING CENTRE: BRACKNELL
## MONTH: August 2000

### Monitoring procedures

| | | |
|---|---|---|
| **Period** | | :One calendar month. |
| **Data monitored** | | :Statistics for each airline carrier. |
| **Area monitored** | | :90°N - 90°S, 180°W - 180°E. |
| **Standard of comparison** | | :Background field from UKMO global model. |
| **Observation times** | | :All hours combined. |
| **Level(s) monitored** | | :1000.0 – 300.1 hPa |
| **Elements monitored** | | :TEMP in °C ; WIND in m s$^{-1}$ |
| **Parameters monitored** | | |
| | :N REP. | :Number of observations received excluding duplicates. |
| | :PG | :Percentage of observations with gross errors. |
| | :PR | :Percentage of observations rejected by quality control including rejections from the duplicate check. |
| | :PC | :Percentage of observations with calm winds. |
| | :RMS | :Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind. |
| | :BIAS | :Mean difference of observations from background values excluding those with gross errors in Temperature & Wind Speed. |
| **GROSS ERROR LIMITS** | | :10.0 °C ; 60 m s$^{-1}$ Vector Wind |
| **SELECTION CRITERIA** | | :N REP ≥ 20 |

**NB:** All American ACARS data are grouped together and statistics are shown at the bottom of the table as "US ACARS". All ADS reports are similarly grouped together.

| | TEMPERATURE | | | | | WIND | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| IDENT. | N.REP. | PG | PR | RMS | BIAS | N.REP. | PG | PR | PC | RMS | BIAS |
| AAL | 348 | 1 | 12 | 1.1 | 0.0 | 353 | 0 | 12 | 0 | 7.2 | 0.8 |
| AAR | 39 | 10 | 31 | 2.3 | -1.0 | 37 | 0 | 16 | 0 | 4.8 | 0.1 |
| ACI | 26 | 0 | 58 | 1.6 | -0.5 | 26 | 0 | 58 | 0 | 4.8 | 1.0 |
| AFL | 44 | 0 | 0 | 1.7 | 0.9 | 44 | 0 | 0 | 0 | 5.1 | 0.7 |
| AFR | 62 | 3 | 5 | 0.9 | 0.0 | 63 | 0 | 2 | 0 | 4.8 | 0.7 |
| AMT | 27 | 0 | 37 | 3.0 | 2.5 | 26 | 0 | 38 | 0 | 4.7 | -1.3 |
| ANG | 60 | 0 | 68 | 0.7 | 0.2 | 60 | 0 | 68 | 0 | 4.0 | 1.4 |
| ANO | 59 | 0 | 69 | 1.0 | 0.0 | 59 | 0 | 69 | 0 | 4.2 | -0.7 |
| ANZ | 236 | 6 | 39 | 1.2 | 0.2 | 238 | 0 | 38 | 0 | 8.5 | 1.3 |
| AOM | 107 | 1 | 7 | 1.5 | 1.2 | 106 | 0 | 7 | 0 | 7.0 | 0.3 |
| ARG | 23 | 9 | 26 | 3.5 | 1.3 | 23 | 0 | 17 | 0 | 11.4 | 0.7 |
| AVN | 32 | 0 | 50 | 1.5 | -0.2 | 30 | 0 | 50 | 0 | 4.7 | 0.4 |
| AXF | 43 | 5 | 40 | 1.2 | -0.2 | 43 | 0 | 37 | 0 | 4.3 | 1.2 |
| BAF | 26 | 0 | 0 | 0.9 | 0.3 | 26 | 0 | 0 | 0 | 6.5 | 0.6 |
| BWA | 20 | 0 | 5 | 1.4 | 1.1 | 20 | 0 | 5 | 0 | 6.9 | 3.2 |
| CAL | 23 | 0 | 30 | 2.9 | 1.6 | 28 | 0 | 29 | 0 | 6.0 | 3.0 |
| CDN | 32 | 0 | 34 | 1.4 | 0.1 | 29 | 0 | 34 | 0 | 7.4 | 1.5 |
| CFC | 111 | 4 | 14 | 2.2 | 1.1 | 111 | 0 | 13 | 0 | 7.4 | 1.2 |
| CFG | 34 | 0 | 6 | 1.0 | -0.2 | 32 | 0 | 13 | 0 | 11.9 | 0.6 |
| CLX | 30 | 0 | 0 | 1.2 | -0.4 | 31 | 0 | 3 | 0 | 7.5 | -0.8 |
| CMI | 54 | 0 | 2 | 1.4 | 0.2 | 59 | 0 | 3 | 0 | 9.6 | 3.0 |
| COA | 173 | 5 | 35 | 1.6 | 0.3 | 169 | 0 | 34 | 0 | 9.6 | 2.2 |
| CRL | 31 | 0 | 23 | 1.4 | 0.9 | 31 | 0 | 23 | 0 | 5.4 | 0.7 |
| CTM | 27 | 0 | 30 | 4.1 | -3.7 | 27 | 0 | 15 | 0 | 8.6 | 1.0 |
| CUB | 39 | 3 | 5 | 2.1 | 1.5 | 39 | 0 | 5 | 0 | 8.0 | 0.6 |
| DAF | 38 | 3 | 13 | 3.6 | 2.7 | 37 | 0 | 5 | 0 | 4.2 | 0.6 |
| DAL | 156 | 1 | 37 | 1.1 | 0.5 | 154 | 0 | 36 | 0 | 5.5 | 0.5 |
| DBY | 22 | 0 | 23 | 1.0 | -0.5 | 22 | 0 | 27 | 0 | 4.9 | 0.2 |
| DHL | 61 | 2 | 64 | 5.7 | -5.0 | 62 | 2 | 42 | 0 | 18.7 | 6.3 |
| DLH | 237 | 1 | 14 | 1.3 | 0.5 | 235 | 0 | 13 | 0 | 7.0 | 0.7 |
| EIA | 58 | 0 | 33 | 2.0 | 0.2 | 57 | 0 | 33 | 0 | 9.0 | -0.1 |
| EVA | 60 | 0 | 20 | 1.6 | -1.2 | 60 | 0 | 20 | 0 | 5.3 | -0.5 |
| EWW | 66 | 3 | 9 | 1.6 | 0.5 | 68 | 0 | 6 | 0 | 9.5 | 0.3 |
| FDX | 540 | 1 | 10 | 1.5 | 0.6 | 546 | 0 | 11 | 0 | 7.8 | 0.9 |
| FIN | 33 | 3 | 6 | 1.0 | 0.5 | 31 | 0 | 3 | 0 | 4.9 | 1.0 |
| FWQ | 101 | 6 | 67 | 1.8 | 0.7 | 101 | 0 | 64 | 0 | 6.0 | 0.1 |
| FXI | 51 | 2 | 2 | 2.1 | 1.0 | 50 | 0 | 8 | 0 | 12.1 | 5.1 |
| GAF | 70 | 0 | 0 | 1.2 | 0.3 | 69 | 0 | 1 | 0 | 6.2 | 0.9 |
| GCO | 229 | 1 | 3 | 1.3 | 0.1 | 237 | 0 | 100 | 0 | 16.7 | 3.8 |
| GHA | 84 | 5 | 12 | 1.1 | -0.1 | 82 | 0 | 9 | 0 | 9.4 | 2.8 |
| GRL | 20 | 0 | 0 | 0.7 | 0.1 | 20 | 0 | 0 | 0 | 4.2 | 0.6 |
| HAL | 136 | 4 | 44 | 2.0 | 0.0 | 132 | 0 | 39 | 0 | 6.7 | 1.6 |
| HRH | 20 | 0 | 60 | 1.0 | -0.1 | 20 | 0 | 60 | 0 | 8.1 | 4.3 |
| IBE | 108 | 2 | 28 | 2.6 | 0.6 | 105 | 1 | 26 | 0 | 8.4 | 1.7 |
| ICE | 97 | 2 | 2 | 1.1 | 0.3 | 98 | 0 | 1 | 0 | 8.6 | 2.3 |
| JAL | 62 | 5 | 11 | 1.4 | 0.2 | 62 | 0 | 8 | 0 | 7.1 | 1.0 |
| JAZ | 131 | 2 | 7 | 2.0 | 1.3 | 132 | 0 | 2 | 0 | 5.5 | 0.2 |
| JMC | 71 | 1 | 10 | 2.4 | 1.2 | 63 | 0 | 8 | 0 | 7.3 | 0.6 |
| KAL | 199 | 9 | 26 | 1.4 | -0.3 | 193 | 1 | 21 | 0 | 7.7 | 1.7 |
| KIW | 107 | 2 | 47 | 2.6 | 2.1 | 107 | 3 | 50 | 0 | 11.5 | 0.3 |
| KLM | 63 | 2 | 11 | 1.6 | 0.9 | 63 | 0 | 10 | 0 | 7.2 | 0.4 |
| LAN | 62 | 10 | 11 | 2.5 | 1.1 | 67 | 0 | 6 | 0 | 12.0 | 5.4 |
| LIB | 36 | 0 | 0 | 1.7 | 1.2 | 36 | 0 | 3 | 0 | 4.7 | 0.7 |
| LTU | 33 | 0 | 0 | 0.8 | -0.4 | 32 | 0 | 0 | 0 | 5.2 | 0.8 |
| MAS | 52 | 0 | 8 | 1.5 | 0.7 | 52 | 0 | 13 | 0 | 8.8 | 1.0 |
| NAT | 22 | 5 | 5 | 2.3 | 1.1 | 26 | 0 | 8 | 0 | 10.5 | -0.9 |
| NCA | 112 | 0 | 4 | 2.1 | 0.2 | 113 | 0 | 2 | 0 | 7.4 | 0.5 |
| NWA | 397 | 2 | 11 | 1.6 | 0.4 | 377 | 0 | 10 | 0 | 8.3 | 0.7 |
| PAC | 50 | 0 | 6 | 2.2 | 0.6 | 56 | 0 | 11 | 0 | 11.4 | 0.3 |

| | TEMPERATURE | | | | | WIND | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| IDENT. | N.REP. | PG | PR | RMS | BIAS | N.REP. | PG | PR | PC | RMS | BIAS |
| PAL | 101 | 2 | 6 | 1.1 | -0.3 | 91 | 0 | 4 | 0 | 5.6 | 1.4 |
| QFA | 216 | 12 | 56 | 1.4 | 0.3 | 215 | 0 | 51 | 0 | 11.7 | 2.7 |
| RCH | 150 | 1 | 15 | 2.2 | 0.6 | 153 | 0 | 24 | 0 | 14.4 | 3.4 |
| RRR | 158 | 1 | 18 | 4.1 | 3.5 | 164 | 0 | 13 | 0 | 6.4 | 0.2 |
| SAA | 64 | 8 | 14 | 2.2 | -0.8 | 63 | 0 | 3 | 0 | 9.0 | 2.2 |
| SAS | 89 | 0 | 19 | 1.5 | 0.0 | 90 | 0 | 22 | 0 | 8.9 | 2.2 |
| SIA | 76 | 3 | 3 | 1.0 | 0.1 | 75 | 0 | 0 | 0 | 5.9 | 1.4 |
| UAL | 227002 | 0 | 100 | 1.2 | -0.1 | 226599 | 0 | 100 | 0 | 4.0 | 0.3 |
| UPS | 112 | 0 | 13 | 1.7 | 0.6 | 115 | 0 | 15 | 0 | 6.4 | 0.3 |
| VHJ | 111 | 0 | 2 | 2.2 | -0.1 | 110 | 0 | 2 | 0 | 9.0 | -0.9 |
| VTA | 51 | 18 | 33 | 1.4 | -0.2 | 51 | 0 | 24 | 0 | 5.5 | -0.9 |
| VVP | 40 | 8 | 65 | 5.5 | 4.2 | 39 | 3 | 38 | 0 | 12.0 | 3.9 |
| VVR | 24 | 17 | 50 | 3.5 | -0.4 | 22 | 0 | 27 | 0 | 13.9 | 5.3 |
| AN | 77088 | 0 | 66 | 1.2 | 0.1 | 77085 | 0 | 66 | 0 | 4.3 | 0.3 |
| AR | 2023 | 5 | 100 | 2.3 | 1.3 | 2006 | 0 | 53 | 0 | 5.8 | 1.1 |
| EU | 599676 | 0 | 80 | 1.0 | 0.1 | 599447 | 0 | 80 | 0 | 3.6 | 0.1 |
| KL | 6003 | 0 | 58 | 1.3 | 0.5 | 5975 | 0 | 58 | 0 | 3.7 | 0.3 |
| LH | 918 | 0 | 67 | 1.0 | 0.4 | 915 | 0 | 67 | 0 | 3.8 | 0.9 |
| MK | 3843 | 0 | 50 | 1.3 | 0.4 | 3811 | 0 | 53 | 0 | 8.8 | 2.4 |
| NZ | 8087 | 0 | 55 | 1.2 | 0.2 | 8087 | 0 | 56 | 0 | 5.0 | 0.3 |
| QF | 22622 | 0 | 57 | 1.1 | 0.5 | 22621 | 0 | 57 | 0 | 4.2 | 0.2 |
| SA | 1925 | 0 | 58 | 1.2 | 0.3 | 1913 | 0 | 58 | 0 | 5.4 | 1.2 |
| SV | 2735 | 1 | 100 | 3.4 | 3.0 | 2720 | 0 | 49 | 0 | 4.8 | 1.1 |
| WA | 27 | 15 | 22 | 1.2 | 0.6 | 27 | 0 | 30 | 0 | 11.0 | -0.5 |
| XX | 576 | 6 | 12 | 2.0 | 0.1 | 614 | 0 | 12 | 0 | 10.0 | 2.1 |
| US ACARS | 573894 | 0 | 51 | 1.2 | 0.2 | 571754 | 0 | 53 | 0 | 4.4 | 0.3 |

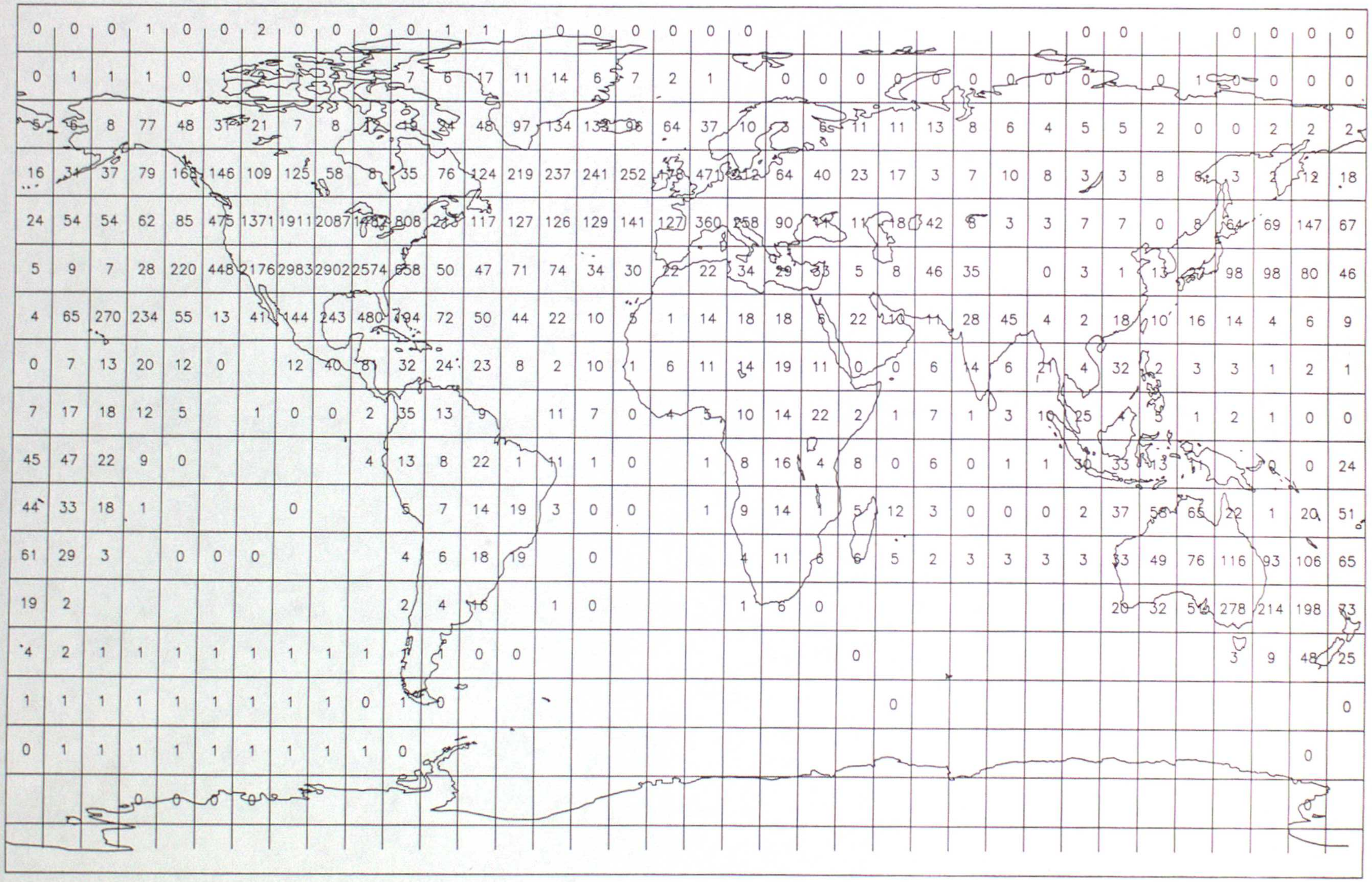
MEAN DAILY COUNT OF AIRCRAFT 300 – 150 HPA

AUGUST 2000

OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 33027

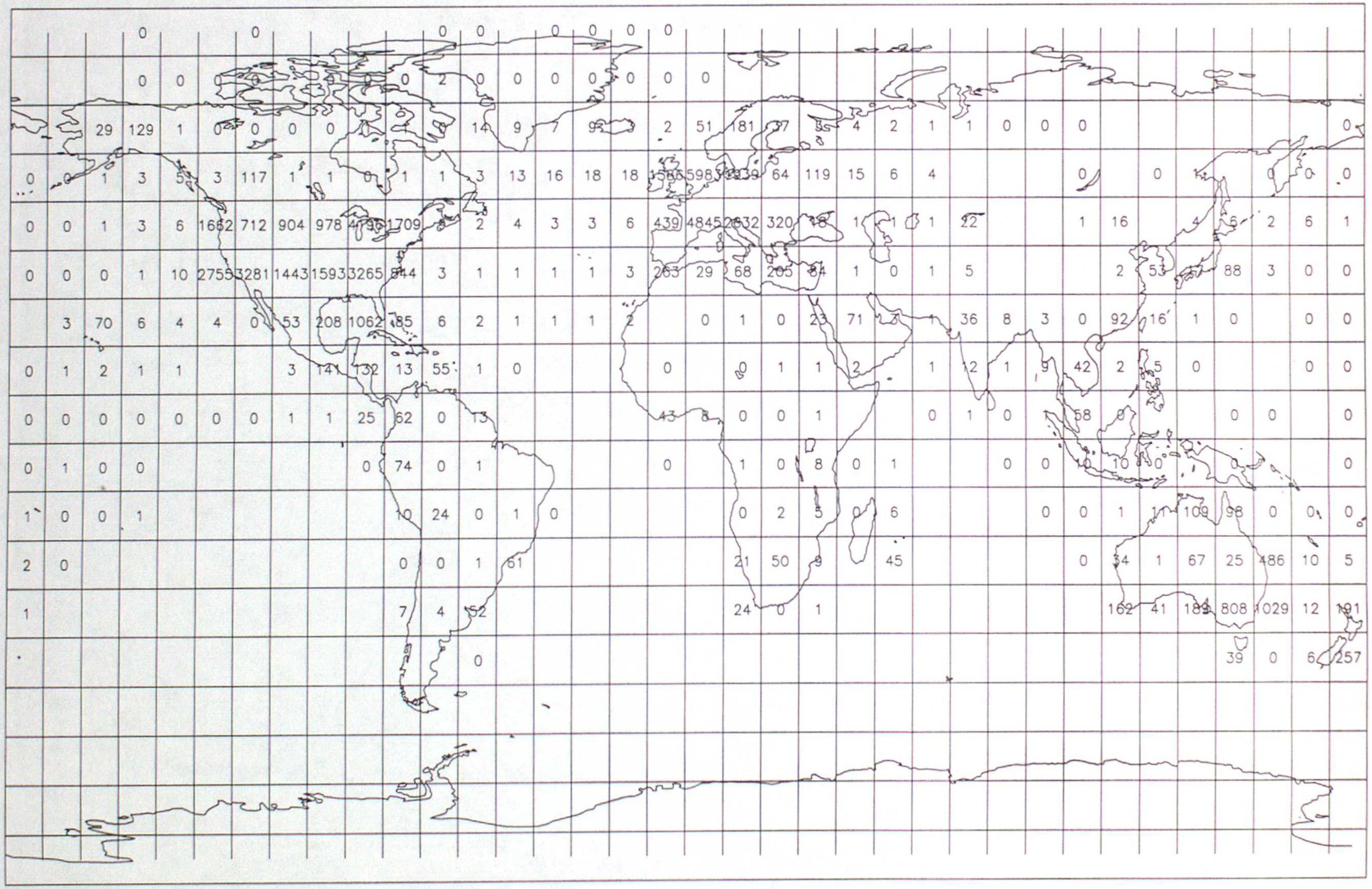
FIGURE 3A



| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 1 | | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | 0 | 0 | | | 0 | 0 | 0 | 0 |
| 0 | 1 | 1 | 1 | 0 | 1 | | | | | 7 | 6 | 17 | 11 | 14 | 6 | 7 | 2 | 1 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 1 | 0 | 0 | 0 | 0 |
| 5 | 6 | 8 | 77 | 48 | 31 | 21 | 7 | 8 | 17 | 19 | 24 | 48 | 97 | 134 | 133 | 96 | 64 | 37 | 10 | 3 | 65 | 11 | 11 | 13 | 8 | 6 | 4 | 5 | 5 | 2 | 0 | 0 | 2 | 2 | 2 |
| 16 | 34 | 37 | 79 | 168 | 146 | 109 | 125 | 58 | 8 | 35 | 76 | 124 | 219 | 237 | 241 | 252 | 178 | 471 | 312 | 64 | 40 | 23 | 17 | 3 | 7 | 10 | 8 | 3 | 3 | 8 | 6 | 3 | 2 | 12 | 18 |
| 24 | 54 | 54 | 62 | 85 | 475 | 1371 | 1911 | 2087 | 1482 | 808 | 213 | 117 | 127 | 126 | 129 | 141 | 127 | 360 | 258 | 90 | 41 | 11 | 18 | 42 | 8 | 3 | 3 | 7 | 7 | 0 | 8 | 64 | 69 | 147 | 67 |
| 5 | 9 | 7 | 28 | 220 | 448 | 2176 | 2983 | 2902 | 2574 | 658 | 50 | 47 | 71 | 74 | 34 | 30 | 22 | 22 | 34 | 29 | 33 | 5 | 8 | 46 | 35 | | 0 | 3 | 1 | 13 | 37 | 98 | 98 | 80 | 46 |
| 4 | 65 | 270 | 234 | 55 | 13 | 41 | 144 | 243 | 480 | 194 | 72 | 50 | 44 | 22 | 10 | 5 | 1 | 14 | 18 | 18 | 6 | 22 | 10 | 11 | 28 | 45 | 4 | 2 | 18 | 10 | 16 | 14 | 4 | 6 | 9 |
| 0 | 7 | 13 | 20 | 12 | 0 | | 12 | 40 | 81 | 32 | 24 | 23 | 8 | 2 | 10 | 1 | 6 | 11 | 14 | 19 | 11 | 0 | 0 | 6 | 14 | 6 | 21 | 4 | 32 | 2 | 3 | 3 | 1 | 2 | 1 |
| 7 | 17 | 18 | 12 | 5 | | 1 | 0 | 0 | 2 | 35 | 13 | 9 | | 11 | 7 | 0 | 4 | 5 | 10 | 14 | 22 | 2 | 1 | 7 | 1 | 3 | 10 | 25 | 4 | 5 | 1 | 2 | 1 | 0 | 0 |
| 45 | 47 | 22 | 9 | 0 | | | | | 4 | 13 | 8 | 22 | 1 | 11 | 1 | 0 | | 1 | 8 | 16 | 4 | 8 | 0 | 6 | 0 | 1 | 1 | 30 | 33 | 13 | 11 | | 0 | 0 | 24 |
| 44 | 33 | 18 | 1 | | | | 0 | | | 5 | 7 | 14 | 19 | 3 | 0 | 0 | | 1 | 9 | 14 | 1 | 5 | 12 | 3 | 0 | 0 | 0 | 2 | 37 | 58 | 65 | 22 | 1 | 20 | 51 |
| 61 | 29 | 3 | | 0 | 0 | 0 | | | | 4 | 6 | 18 | 19 | | 0 | | | | 4 | 11 | 6 | 6 | 5 | 2 | 3 | 3 | 3 | 3 | 33 | 49 | 76 | 116 | 93 | 106 | 65 |
| 19 | 2 | | | | | | | | | 2 | 4 | 16 | | 1 | 0 | | | | 1 | 6 | 0 | | | | | | | | 20 | 32 | 51 | 278 | 214 | 198 | 73 |
| 4 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | | | | | | | | | 0 | | | | | | | | | | 3 | 9 | 48 | 25 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | | | | | | | | | | | | 0 | | | | | | | | | | | | 0 |
| 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | 0 | |
| | | | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

MEAN DAILY COUNT OF AIRCRAFT 1000 – 301 HPA
AUGUST 2000
OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 49357

FIGURE 3B


0 0 0 0 0 0 0 0
0 0 0 2 0 0 0 0 0 0 0 0 0
29 129 1 0 0 0 0 14 9 7 9 2 51 181 37 4 2 1 1 0 0 0 0
0 0 1 3 5 3 117 1 1 0 1 1 3 13 16 18 18 1586 598 64 119 15 6 4 0 0 0 0 0
0 0 1 3 6 1662 712 904 978 1709 2 4 3 3 6 439 4845 2632 320 1 1 1 22 1 16 4 6 2 6 1
0 0 0 1 10 2755 3281 1443 1593 3265 844 3 1 1 1 1 3 263 29 68 205 84 1 0 1 5 2 53 88 3 0 0
3 70 6 4 4 0 53 208 1062 185 6 2 1 1 1 2 0 1 0 23 71 1 36 8 3 0 92 16 1 0 0 0
0 1 2 1 1 3 141 132 13 55 1 0 0 0 1 1 2 1 12 1 9 42 2 5 0 0 0
0 0 0 0 0 0 0 1 1 25 62 0 13 43 8 0 0 1 0 1 0 1 58 0 0 0 0
0 1 0 0 0 74 0 1 0 1 0 8 0 1 0 0 10 10 0 0
1 0 0 1 10 24 0 1 0 0 2 5 0 6 0 0 1 1 109 98 0 0 0
2 0 0 0 1 61 21 50 9 45 0 34 1 67 25 486 10 5
1 7 4 52 24 0 1 162 41 189 808 1029 12 191
0 39 0 6 257

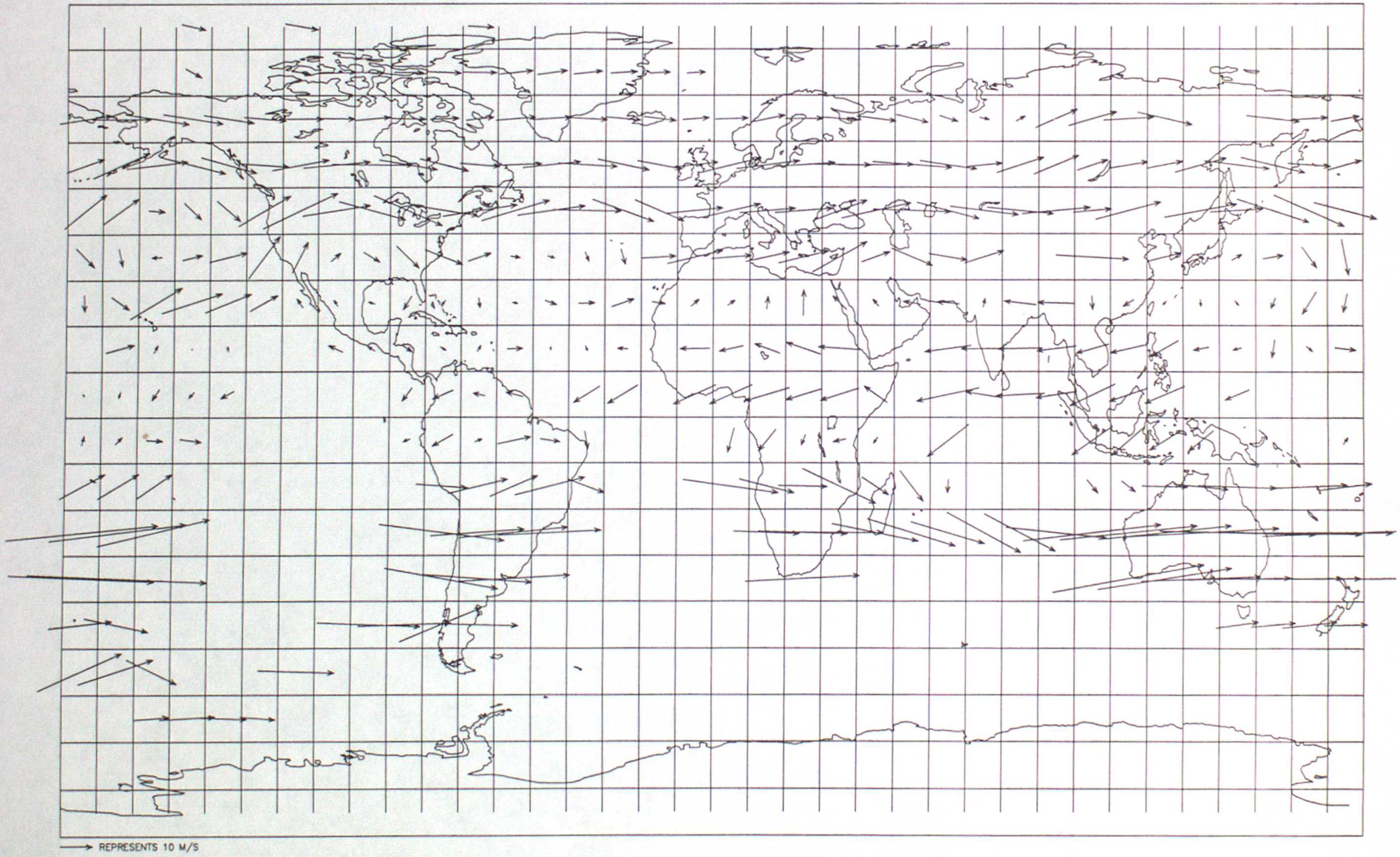
AIRCRAFT MEAN WINDS BETWEEN 300 AND 150 HPA

FIGURE 4A

AUGUST 2000

OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



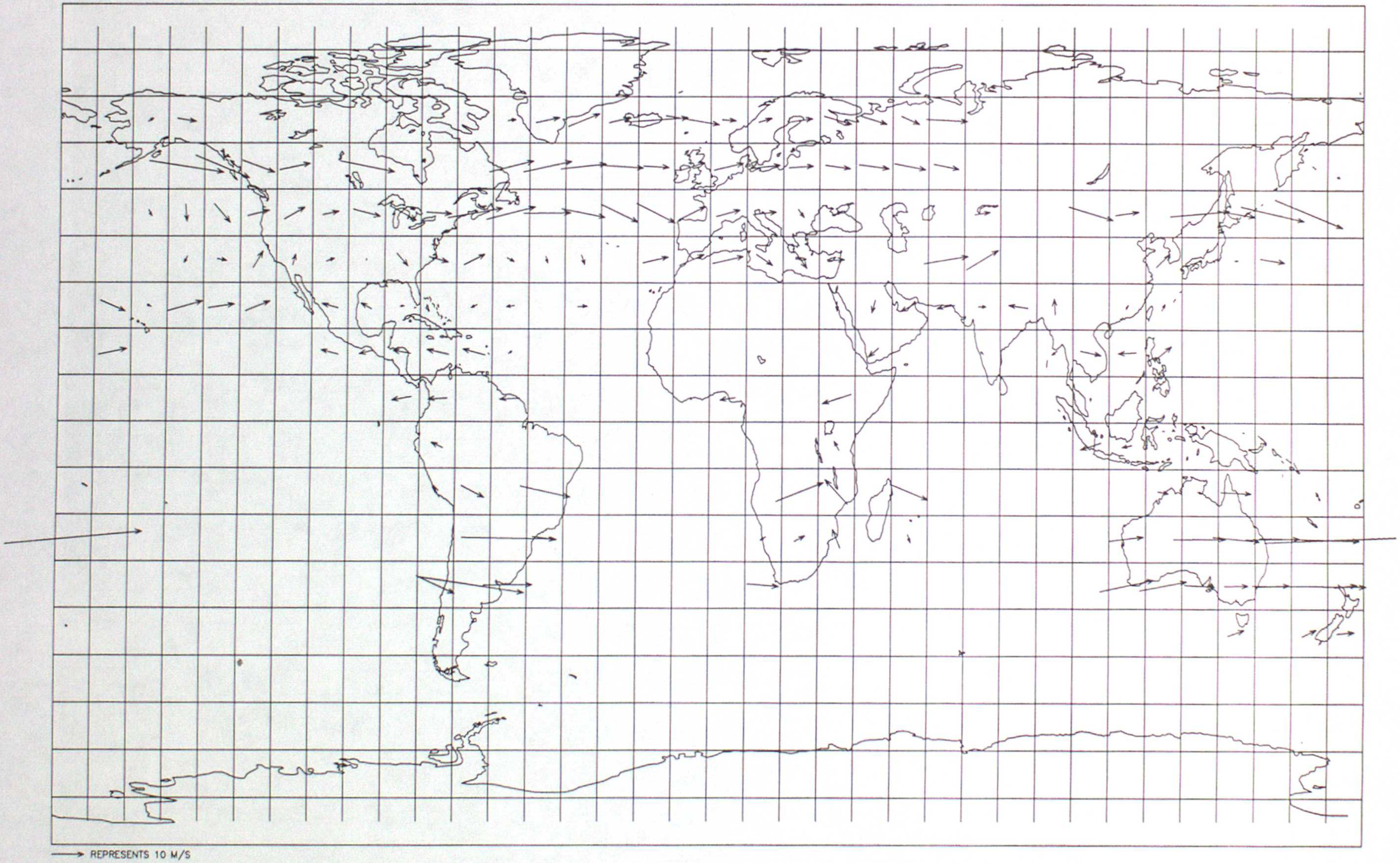
AIRCRAFT MEAN WINDS BETWEEN 1000 AND 301 HPA

AUGUST 2000

OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 4B



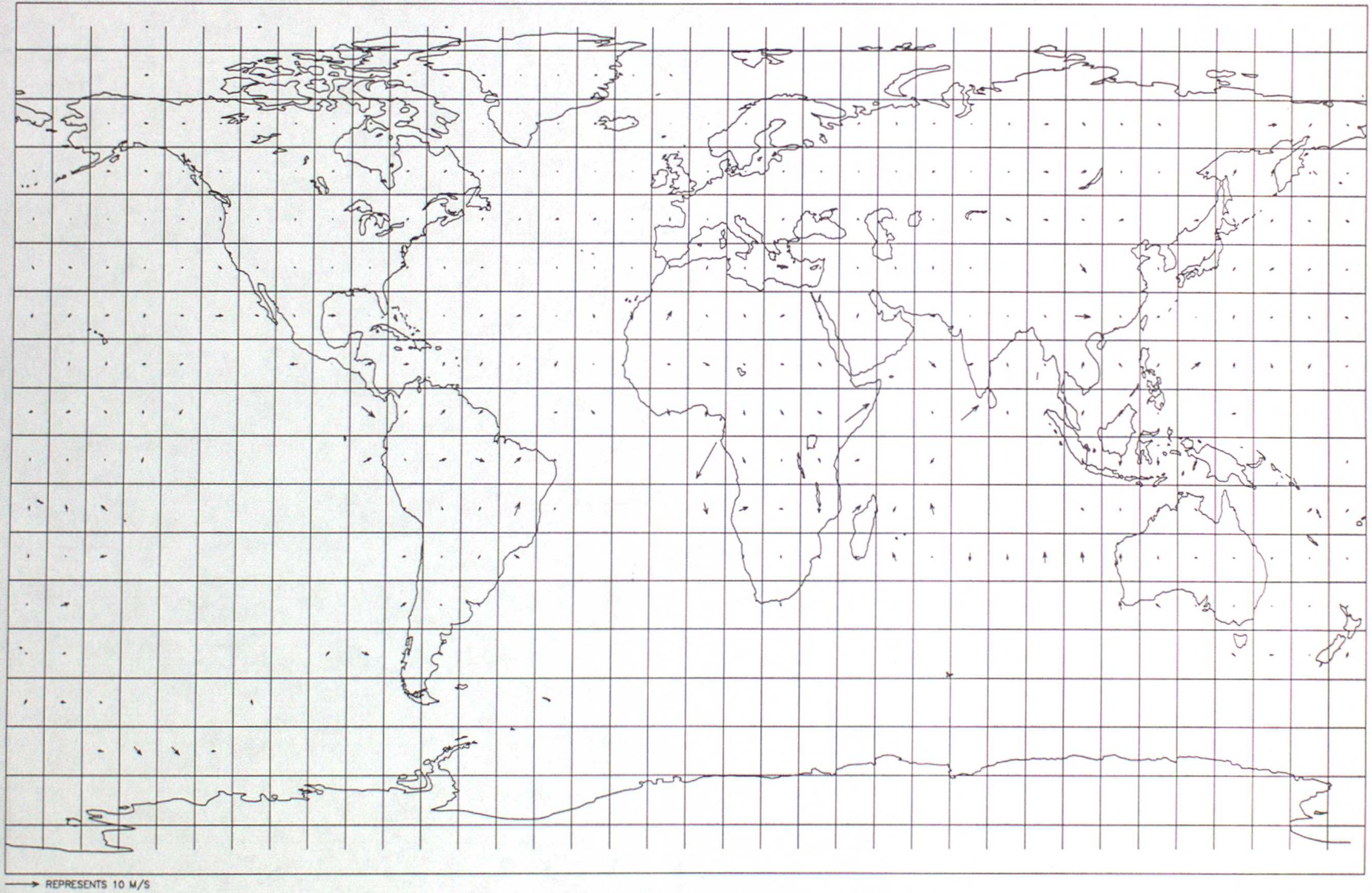
AIRCRAFT MEAN O–B WINDS BETWEEN 300 AND 150 HPA

FIGURE 5A

AUGUST 2000

OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



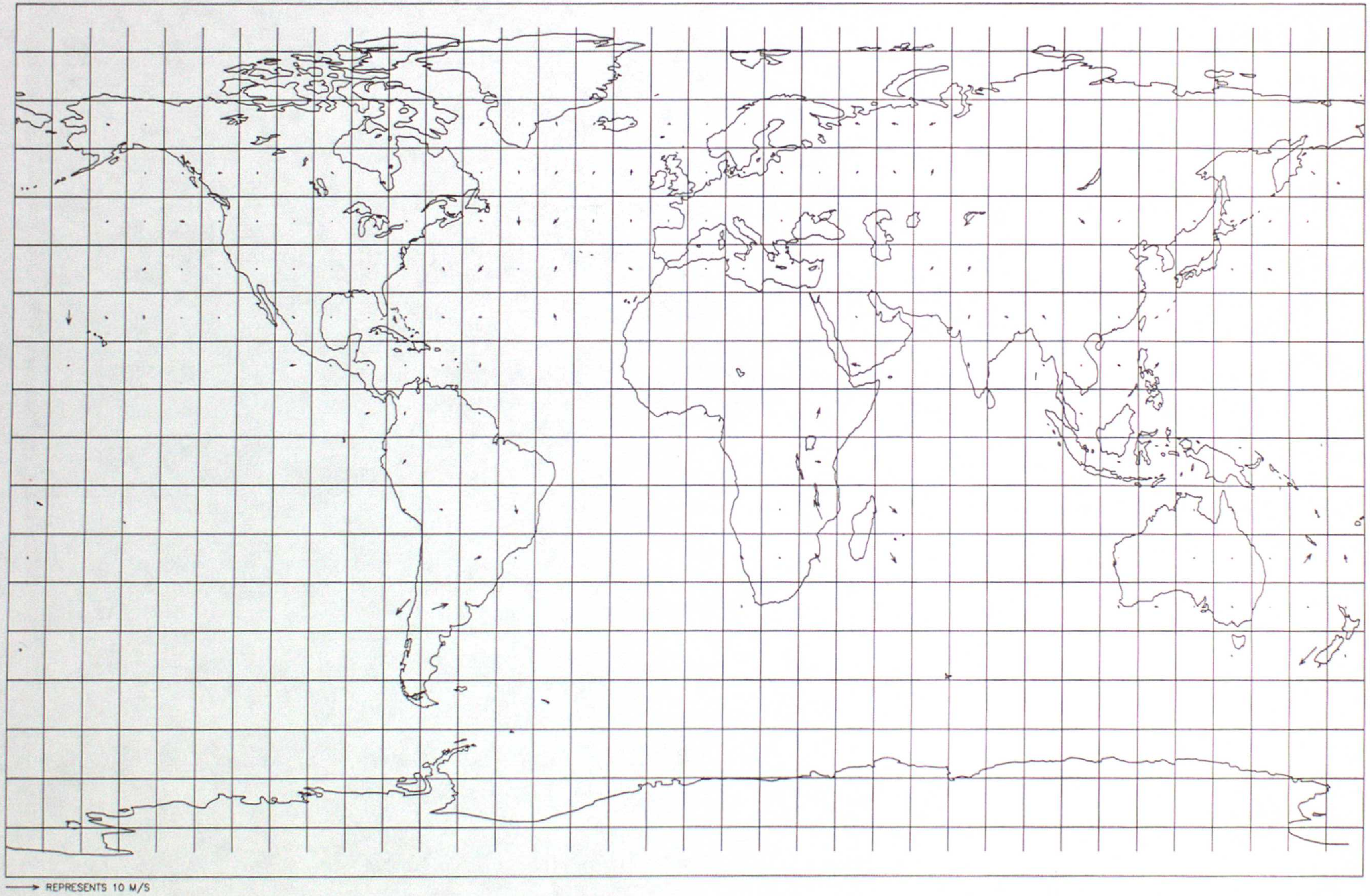
AIRCRAFT MEAN O–B WINDS BETWEEN 1000 AND 301 HPA

FIGURE 5B

AUGUST 2000

OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



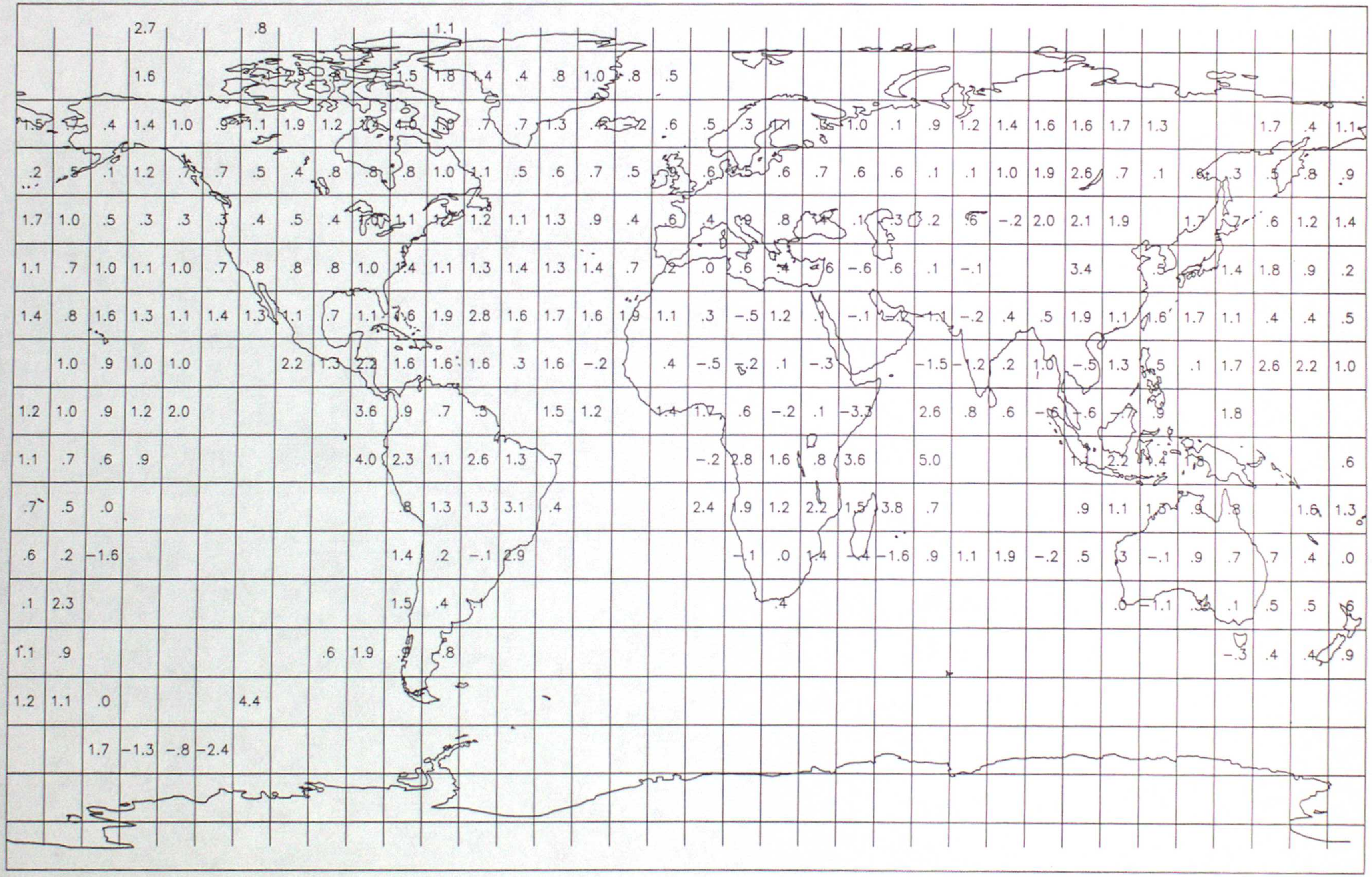
AIRCRAFT : MEAN O-B SPEEDS (M/S) 300 - 150 HPA

FIGURE 6A

AUGUST 2000

OBSERVATIONS WITH O-B VECTOR DIFFERENCE > 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT


2.7 .8 1.1
1.6 1.5 1.8 1.4 .4 .8 1.0 .8 .5
1.5 1.7 .4 1.4 1.0 .9 1.1 1.9 1.2 1.4 4.0 1.0 .7 .7 1.3 .4 -.2 .6 .5 .3 1.1 .3 1.0 .1 .9 1.2 1.4 1.6 1.6 1.7 1.3 1.7 .4 1.1
.2 .5 .1 1.2 .7 .7 .5 .4 .8 .8 .8 1.0 1.1 .5 .6 .7 .5 .9 .6 .5 .6 .7 .6 .6 .1 .1 1.0 1.9 2.6 .7 .1 .6 .3 .5 .8 .9
1.7 1.0 .5 .3 .3 .3 .4 .5 .4 1.0 1.1 1.2 1.2 1.1 1.3 .9 .4 .6 .4 .9 .8 .4 .1 .3 .2 .6 -.2 2.0 2.1 1.9 1.7 .7 .6 1.2 1.4
1.1 .7 1.0 1.1 1.0 .7 .8 .8 .8 1.0 1.4 1.1 1.3 1.4 1.3 1.4 .7 .2 .0 .6 .4 .6 -.6 .6 .1 -.1 3.4 .5 1.4 1.8 .9 .2
1.4 .8 1.6 1.3 1.1 1.4 1.3 1.1 .7 1.1 1.6 1.9 2.8 1.6 1.7 1.6 1.9 1.1 .3 -.5 1.2 .1 -.1 -.2 -1.1 -.2 .4 .5 1.9 1.1 1.6 1.7 1.1 .4 .4 .5
1.0 .9 1.0 1.0 2.2 1.3 2.2 1.6 1.6 1.6 .3 1.6 -.2 .4 -.5 .2 .1 -.3 -1.5 -1.2 .2 1.0 -.5 1.3 .5 .1 1.7 2.6 2.2 1.0
1.2 1.0 .9 1.2 2.0 3.6 .9 .7 .5 1.5 1.2 1.4 1.7 .6 -.2 .1 -3.3 2.6 .8 .6 -.6 -.6 -.7 .9 1.8
1.1 .7 .6 .9 4.0 2.3 1.1 2.6 1.3 .7 -.2 2.8 1.6 .8 3.6 5.0 1.1 2.2 1.4 1.8 .6
.7 .5 .0 .8 1.3 1.3 3.1 .4 2.4 1.9 1.2 2.2 1.5 3.8 .7 .9 1.1 1.3 .9 .8 1.6 1.3
.6 .2 -1.6 1.4 .2 -.1 2.9 -.1 .0 1.4 -.4 -1.6 .9 1.1 1.9 -.2 .5 .3 -.1 .9 .7 .7 .4 .0
.1 2.3 1.5 .4 .1 .4 .0 -1.1 .3 .1 .5 .5 .6
1.1 .9 .6 1.9 .9 .8 -.3 .4 .4 .9
1.2 1.1 .0 4.4
1.7 -1.3 -.8 -2.4

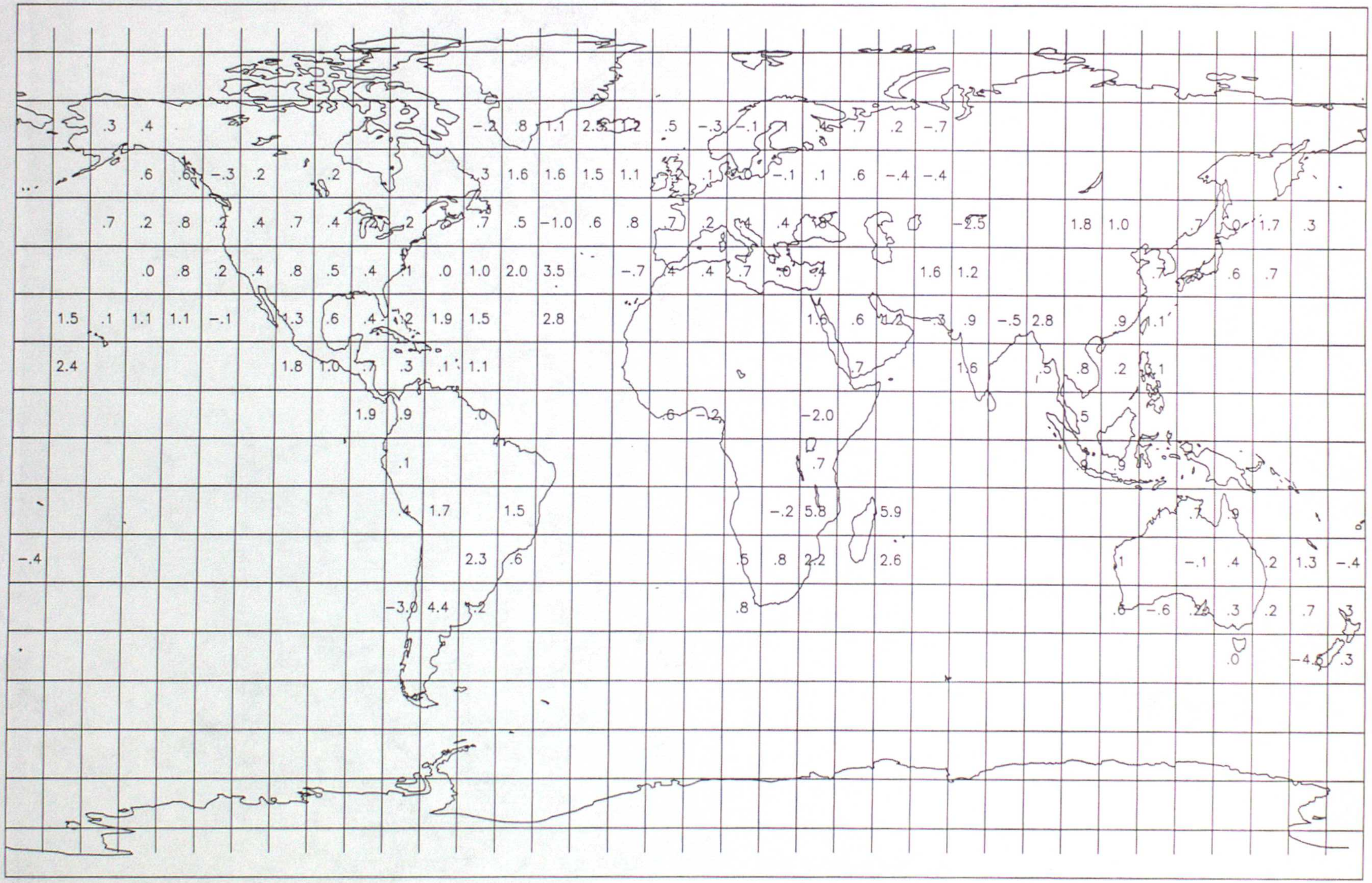
AIRCRAFT : MEAN O-B SPEEDS (M/S) 1000 – 301 HPA

FIGURE 6B

AUGUST 2000

OBSERVATIONS WITH O-B VECTOR DIFFERENCE > 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT


.3 .4 -.2 .8 1.1 2.5 1.2 .5 -.3 -.1 .1 .4 .7 .2 -.7
.6 .6 -.3 .2 .2 .3 1.6 1.6 1.5 1.1 .2 .1 .0 -.1 .1 .6 -.4 -.4
.7 .2 .8 .2 .4 .7 .4 .2 .2 .7 .5 -1.0 .6 .8 .7 .2 .4 .4 .8 -2.5 1.8 1.0 .7 .0 1.7 .3
.0 .8 .2 .4 .8 .5 .4 .1 .0 1.0 2.0 3.5 -.7 .4 .4 .7 .0 .4 1.6 1.2 .7 .6 .7
1.5 .1 1.1 1.1 -.1 1.3 .6 .4 .2 1.9 1.5 2.8 1.6 .6 1.2 -.3 .9 -.5 2.8 .9 1.1
2.4 1.8 1.0 .7 .3 .1 1.1 .7 1.6 .5 .8 .2 .1
1.9 .9 .0 .6 -.2 -2.0 .5
.1 .7 .9 .9
.4 1.7 1.5 -.2 5.8 5.9 .7 .9
-.4 2.3 .6 .5 .8 2.2 2.6 .1 -.1 .4 .2 1.3 -.4
-3.0 4.4 .2 .8 .6 -.6 .2 .3 .2 .7 .3
.0 -4.5 .3

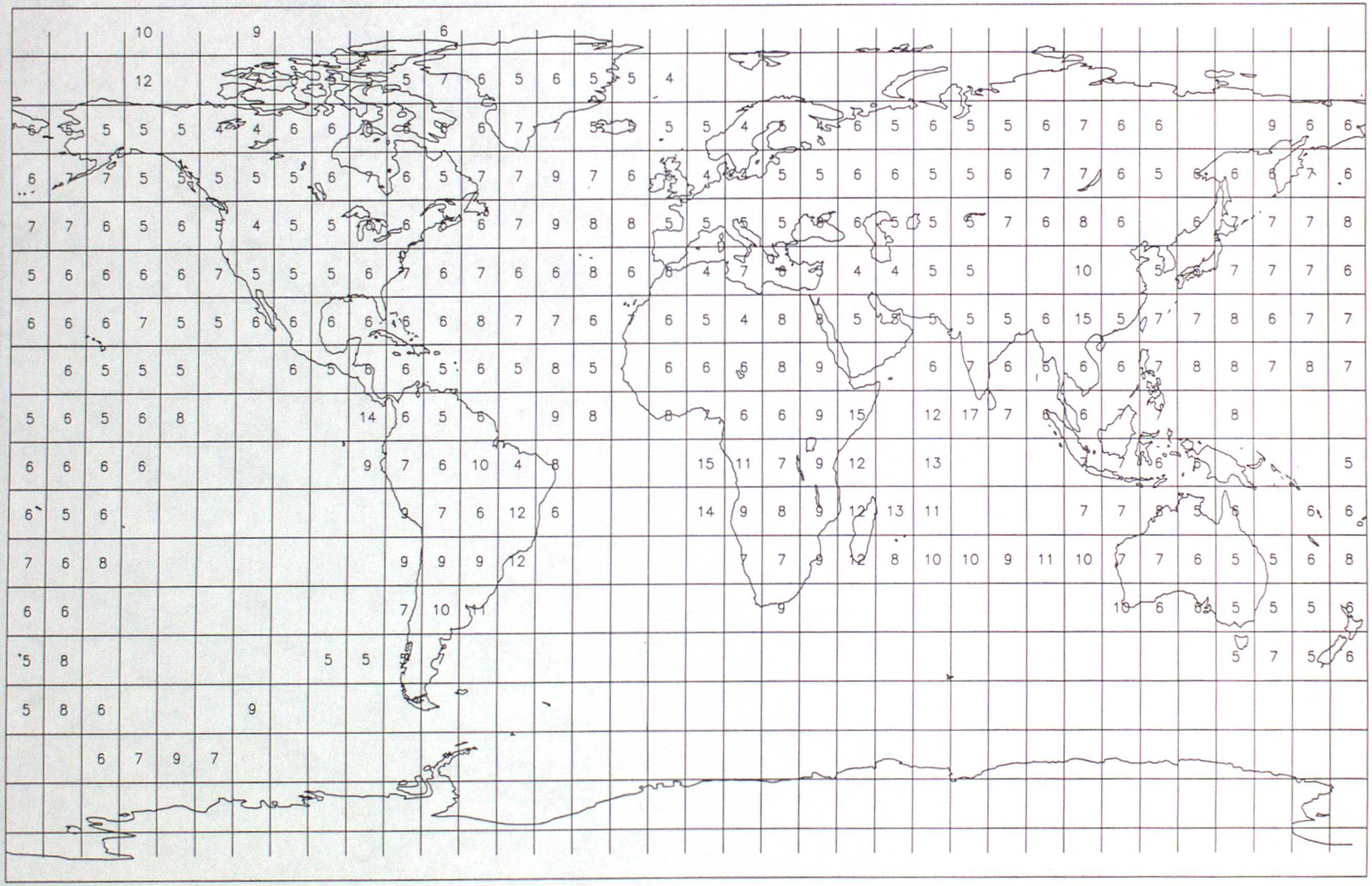
AIRCRAFT : RMS O–B VECTOR (M/S) 300 – 150 HPA

FIGURE 7A

AUGUST 2000

OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT


10 9 6
12 5 7 6 5 6 5 5 4
6 5 5 5 5 4 4 6 6 6 6 6 6 7 7 5 5 5 5 4 5 5 6 5 6 5 5 6 7 6 6 9 6 6
6 7 7 5 5 5 5 5 6 7 6 5 7 7 9 7 6 6 4 4 5 5 6 6 5 5 6 7 7 6 5 6 6 6 7 6
7 7 6 5 6 5 4 5 5 6 6 6 7 9 8 8 5 5 5 5 6 6 5 5 5 7 6 8 6 6 7 7 7 8
5 6 6 6 6 7 5 5 5 6 7 6 7 6 6 8 6 6 4 7 6 5 4 4 5 5 10 5 7 7 7 6
6 6 6 7 5 5 6 6 6 6 6 6 8 7 7 6 7 6 5 4 8 8 5 5 5 5 5 6 15 5 7 7 8 6 7 7
6 5 5 5 6 5 6 6 5 6 5 8 5 6 6 6 8 9 6 7 6 5 6 6 7 8 8 7 8 7
5 6 5 6 8 14 6 5 6 9 8 8 7 6 6 9 15 12 17 7 6 6 7 7 8
6 6 6 6 9 7 6 10 4 8 15 11 7 9 12 13 7 6 5 5
6 5 6 9 7 6 12 6 14 9 8 9 12 13 11 7 7 8 5 6 6 6
7 6 8 9 9 9 12 7 7 9 12 8 10 10 9 11 10 7 7 6 5 5 6 8
6 6 7 10 11 9 10 6 6 5 5 5 6
5 8 5 5 5 7 5 6
5 8 6 9
6 7 9 7

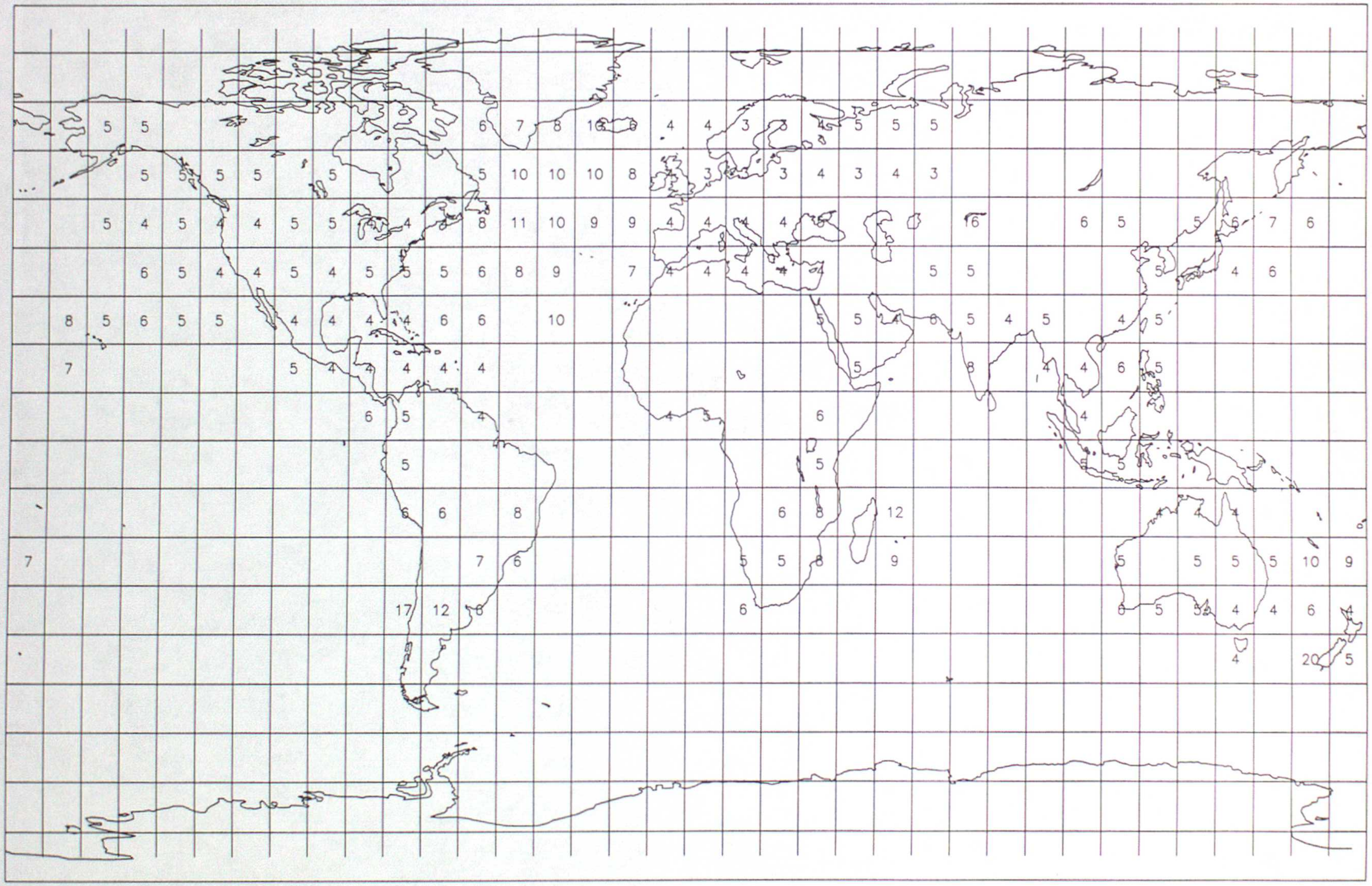
AIRCRAFT : RMS O–B VECTOR (M/S) 1000 – 301 HPA

FIGURE 7B

AUGUST 2000

OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT


5 5 6 7 8 10 6 4 4 3 3 4 5 5 5
5 5 5 5 5 5 10 10 10 8 4 3 3 3 4 3 4 3
5 4 5 4 4 5 5 4 4 4 8 11 10 9 9 4 4 4 4 5 6 6 5 5 6 7 6
6 5 4 4 5 4 5 5 5 6 8 9 7 4 4 4 4 4 5 5 5 4 6
8 5 6 5 5 4 4 4 4 6 6 10 5 5 4 6 5 4 5 4 5
7 5 4 4 4 4 4 5 8 4 4 6 5
6 5 4 4 5 6 4
5 5 5
6 6 8 6 8 12 4 4 4
7 7 6 5 5 8 9 5 5 5 5 10 9
17 12 6 6 6 5 5 4 4 6 4
4 20 5

## TABLE 5

## MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
## MONITORING CENTRE: BRACKNELL
## MONTH: August 2000

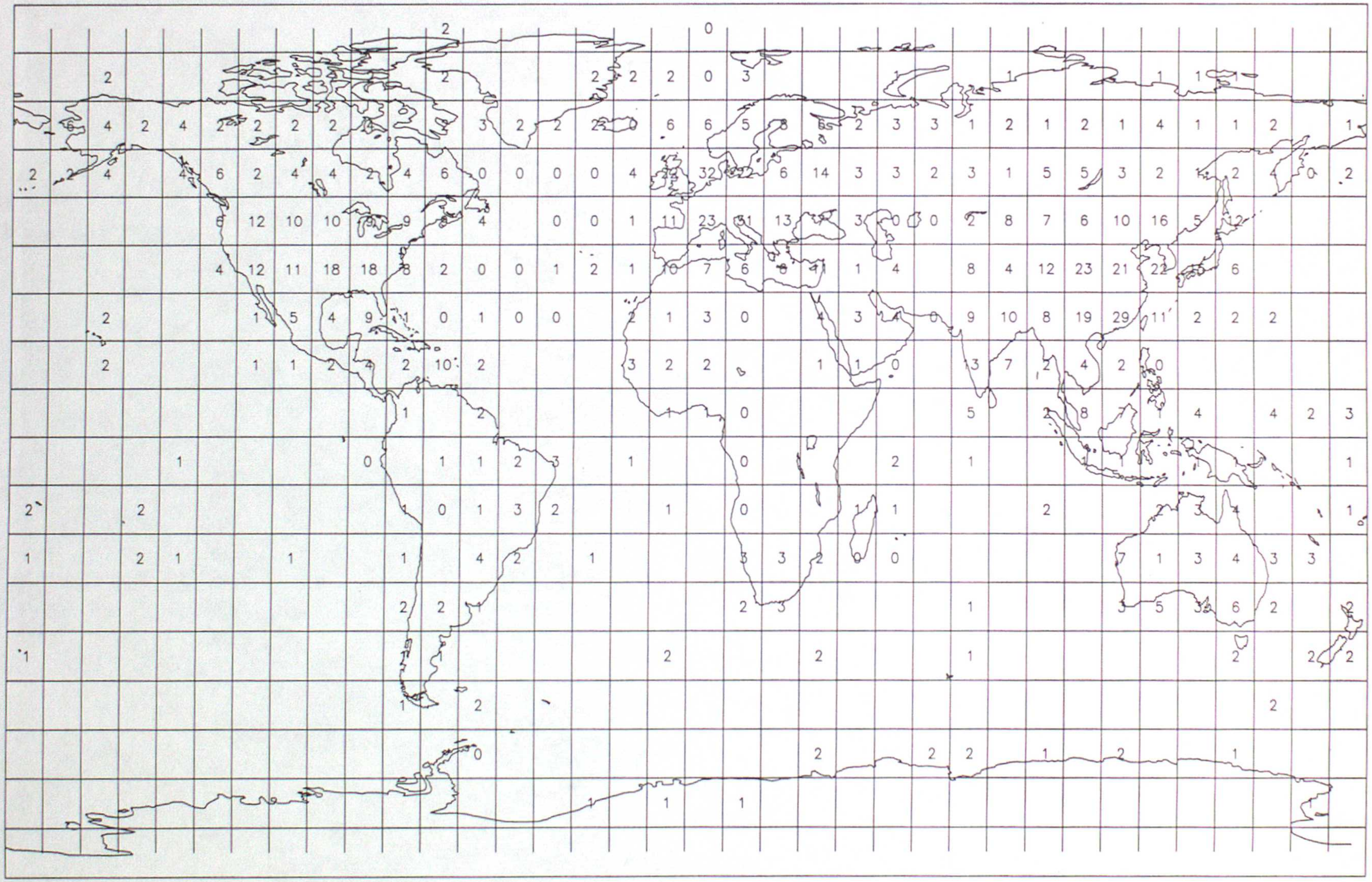
**Monitoring procedures**

| | | |
|---|---|---|
| **Period** | | :One calendar month. |
| **Data monitored** | | :Reports from each unique identifier for radiosonde TEMPs. |
| **Area monitored** | | :90°N - 90°S, 180°W - 180°E. |
| **Standard of comparison** | | :Background field from UKMO global model. |
| **Observation times** | | :00 UTC and 12 UTC. |
| **Level(s) monitored** | | :Standard levels between 1000.0 - 30.0 hPa |
| **Element monitored** | | :GEOPOTENTIAL HEIGHT IN metres |
| **Parameters monitored** | :NUM OBS | :Number of observations available at level shown during period. |
| | :NUM GROSS | :Number of gross errors at level shown duringperiod. |
| | :% REJ | :Percentage of observations rejected by quality control at level shown during period excluding those with gross errors. |
| | :SD | :SD of difference of observations from background values at level shown excluding those with gross errors. |
| | :BIAS | :Mean difference of observations from background values at level shown excluding those with gross errors. |
| | :RMS | :Root Mean Square difference of observations from background values at level shown excluding those with gross errors. |
| | :NUM LEVELS | :Number of levels satisfying selection criteria. |
| **GROSS ERROR LIMITS** | :Defined in Appendix I.1 | |
| **SELECTION CRITERIA** | : ≥3 levels with ≥10 observations and ≥ 100 m weighted RMS. | |

**ONLY THE WORST LEVEL IS SHOWN WITH UNWEIGHTED RMS**

| WMO IDENT | OBS TIME | ELM | LEV | LAT/LONG | NUM OBS | NUM GROSS | SD | BIAS | RMS | NUM LEVELS |
|---|---|---|---|---|---|---|---|---|---|---|
| 25563 | 00 | Z | 200 | 65/ 178 | 17 | 0 | 74.8 | -86.4 | 114.2 | 5 |
| 42027 | 12 | Z | 100 | 34/ 75 | 14 | 1 | 65.5 | 110.1 | 128.1 | 5 |
| 42101 | 12 | Z | 100 | 30/ 76 | 18 | 0 | 82.5 | 159.3 | 179.4 | 4 |
| 42182 | 12 | Z | 100 | 29/ 77 | 23 | 0 | 76.7 | 133.6 | 154.0 | 4 |
| 42339 | 00 | Z | 200 | 26/ 73 | 26 | 0 | 87.1 | 15.3 | 88.4 | 5 |
| 42339 | 12 | Z | 200 | 26/ 73 | 20 | 1 | 95.9 | 11.8 | 96.7 | 5 |
| 42361 | 00 | Z | 150 | 26/ 78 | 13 | 0 | 100.0 | 111.0 | 149.4 | 6 |
| 42361 | 12 | Z | 200 | 26/ 78 | 10 | 0 | 81.9 | -34.3 | 88.8 | 4 |
| 42369 | 12 | Z | 250 | 27/ 81 | 11 | 0 | 68.4 | 28.5 | 74.1 | 4 |
| 42397 | 12 | Z | 150 | 27/ 88 | 17 | 0 | 103.1 | -32.3 | 108.0 | 5 |
| 42647 | 00 | Z | 150 | 23/ 73 | 11 | 0 | 123.0 | 13.0 | 123.6 | 4 |
| 42667 | 00 | Z | 200 | 23/ 77 | 20 | 0 | 86.0 | 41.1 | 95.4 | 4 |
| 42867 | 00 | Z | 200 | 21/ 79 | 25 | 0 | 91.3 | 34.2 | 97.5 | 6 |
| 42867 | 12 | Z | 100 | 21/ 79 | 18 | 1 | 112.2 | 88.7 | 143.1 | 6 |
| 43003 | 00 | Z | 100 | 19/ 73 | 13 | 0 | 83.7 | 177.2 | 196.0 | 4 |
| 43003 | 12 | Z | 100 | 19/ 73 | 2 | 15 | 17.5 | 269.5 | 270.1 | 7 |
| 43014 | 00 | Z | 100 | 20/ 75 | 10 | 2 | 80.1 | 118.8 | 143.3 | 5 |
| 43014 | 12 | Z | 100 | 20/ 75 | 6 | 4 | 46.2 | 194.2 | 199.6 | 6 |
| 43185 | 12 | Z | 150 | 16/ 81 | 14 | 1 | 79.6 | 88.4 | 119.0 | 4 |
| 43192 | 12 | Z | 200 | 15/ 74 | 14 | 0 | 94.7 | 107.7 | 143.4 | 4 |
| 43295 | 12 | Z | 200 | 13/ 78 | 27 | 0 | 80.3 | -16.4 | 81.9 | 4 |
| 43369 | 12 | Z | 100 | 8/ 73 | 14 | 1 | 93.3 | 165.7 | 190.2 | 6 |
| 72520 | 00 | Z | 1000 | 40/ -80 | 26 | 4 | 24.1 | 18.4 | 30.3 | 4 |
| 72520 | 12 | Z | 250 | 40/ -80 | 28 | 1 | 76.1 | -16.2 | 77.8 | 5 |
| 84628 | 12 | Z | 850 | -12/ -77 | 25 | 0 | 7.5 | -76.6 | 76.9 | 8 |
| 91366 | 00 | Z | 100 | 9/ 168 | 24 | 1 | 53.4 | 147.4 | 156.8 | 4 |
| 97560 | 00 | Z | 250 | -1/ 136 | 25 | 1 | 46.9 | -66.1 | 81.1 | 6 |

AVAILABILITY – TEMP – 500 HPA GEOPOTENTIAL – AUGUST 2000 FIGURE 8
ALL HOURS
10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS
GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS – 1135


2 0
2 2 2 2 2 0 3 1 1 1 1 1
6 4 2 4 2 2 2 2 4 2 3 2 2 23 0 6 6 5 8 65 2 3 3 1 2 1 2 1 4 1 1 2 1
2 2 4 4 6 2 4 4 2 4 6 0 0 0 0 4 22 32 22 6 14 3 3 2 3 1 5 5 3 2 1 2 4 0 2
6 12 10 10 9 9 8 4 0 0 1 11 23 31 13 7 3 0 0 2 8 7 6 10 16 5 12
4 12 11 18 18 8 2 0 0 1 2 1 10 7 6 8 41 1 4 8 4 12 23 21 22 5 6
2 1 5 4 9 1 0 1 0 0 2 1 3 0 4 3 4 0 9 10 8 19 29 11 2 2 2
2 1 1 2 4 2 10 2 3 2 2 1 1 0 13 7 2 4 2 0
1 2 1 1 0 5 2 8 7 1 4 4 2 3
1 0 1 1 2 3 1 0 2 1 1 1 1 1
2 2 1 0 1 3 2 1 1 0 1 1 2 2 3 4 1 1
1 2 1 1 1 4 2 1 3 3 2 0 0 7 1 3 4 3 3
2 2 1 2 3 1 3 5 3 6 2 2
1 1 2 2 1 2 2 2
1 2 2
0 2 2 2 1 2 1
1 1 1 1

# TABLE 6

## MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
## MONITORING CENTRE: BRACKNELL
## MONTH: August 2000

**Monitoring procedures**

**Period** :One calendar month.

**Data monitored** :Reports from each unique identifier for radiosonde TEMPs.

**Area monitored** :90°N - 90°S, 180°W - 180°E.

**Standard of comparison** :Background field from UKMO global model.

**Observation times** :00 UTC and 12 UTC.

**Level(s) monitored** :Standard levels between 1000.0 - 100.0 hPa

**Element monitored** :VECTOR WIND in $m\ s^{-1}$

**Parameters monitored**

:NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period excluding those with gross errors.

:UBIAS,VBIAS :Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.

:RMS :Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

:NUM LEVELS :Number of levels satisfying selection criteria.

**GROSS ERROR LIMITS** :Defined in Appendix I.2

**SELECTION CRITERIA** : $\geq$ 10 observations and $\geq$ 15 $m\ s^{-1}$ RMS vector wind.

**ONLY THE STANDARD LEVEL BETWEEN 1000 - 100 hPa WITH HIGHEST RMS IS SHOWN**

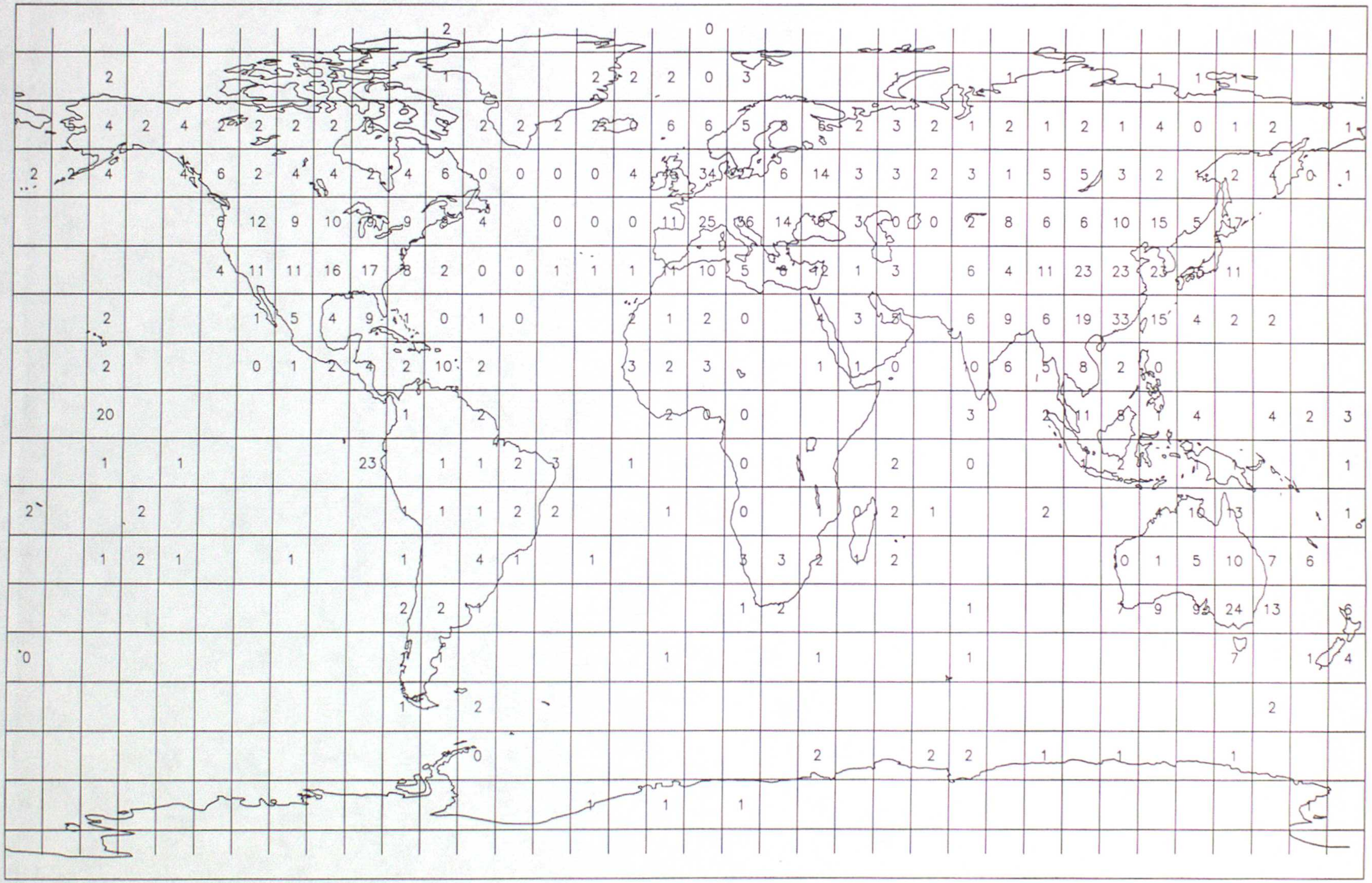
```
 WMO   OBS                                NUM    NUM     %
IDENT TIME ELM   LEV    LAT/LONG   OBS   GROSS   REJ  UBIAS   VBIAS    RMS   LEVELS

PSPIU  00   V    100     -5/ -81    31      0    100   -6.5     0.2    26.1      1
PSPIU  12   V    100     -5/ -81    30      0    100   -0.9    -8.2    21.7      1
48568  12   V    150      7/ 101    21      0     61   16.6    10.3    23.7      1
68816  12   V    300    -34/  19    15      0      6   -9.4     4.8    24.0      1
68842  12   V    100    -34/  26    12      0     66  -21.4    -2.3    23.4      1
```

AVAILABILITY – TEMP/PILOT – 300 HPA WIND – AUGUST 2000 FIGURE 9

ALL HOURS

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS – 1320


2 0
2 1 2 2 2 0 3 1 1 1 1
4 2 4 2 2 2 2 2 2 2 2 0 6 6 5 8 65 2 3 2 1 2 1 2 1 4 0 1 2 1
2 2 4 4 6 2 4 4 2 4 6 0 0 0 0 4 19 34 6 14 3 3 2 3 1 5 5 3 2 1 2 0 1
6 12 9 10 6 9 8 4 0 0 0 11 25 36 14 8 3 0 0 0 2 8 6 6 10 15 5 7
4 11 11 16 17 8 2 0 0 1 1 1 1 10 5 8 42 1 3 6 4 11 23 23 23 35 11
2 1 5 4 9 1 0 1 0 2 1 2 0 4 3 5 6 9 6 19 33 15 4 2 2
2 0 1 2 4 2 10 2 3 2 3 1 1 0 10 6 5 8 2 0
20 1 2 2 0 0 3 2 11 8 4 4 2 3
1 1 23 1 1 2 3 1 0 2 0 1 2 1
2 2 1 1 1 2 2 1 0 1 0 2 1 2 10 13 1 1
1 2 1 1 1 4 1 1 3 3 2 1 2 0 1 5 10 7 6
2 2 1 1 2 1 7 9 92 24 13 6
0 1 1 1 1 1 7 1 4
1 2 2
0 2 2 2 1 1 1
1 1 1

## TABLE 7

## MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
## MONITORING CENTRE: BRACKNELL
## MONTH: August 2000

**Monitoring procedures**

**Period** :One calendar month.

**Data monitored** :Reports from each unique identifier for radiosonde TEMPs.

**Area monitored** :90°N - 90°S, 180°W - 180°E.

**Standard of comparison** :Background field from UKMO global model.

**Observation times** :00 UTC and 12 UTC.

**Level(s) monitored** :Standard levels between 500.0 - 150.0 hPa

**Element monitored** :WIND DIRECTION in degrees

**Parameters monitored**

:NUM OBS :Average number of observations at all levels.

:BIAS :Mean difference of observations from background values from all levels.

:MAX SPREAD :(For observation - background values) Maximum absolute difference of SD at any level from SD at all levels

:SD :SD of difference of observations from background values at all levels.

**SELECTION CRITERIA** :NUM OBS ≥ 5, and
ABSOLUTE BIAS ≥ 10°, with
SD < 30°, and
MAX SPREAD < 10°

| WMO IDENT | OBS TIME | ELM | LAT/LONG | NUM OBS | BIAS | MAX SPREAD | SD |
|---|---|---|---|---|---|---|---|
| 29612 | 12 | DD | 55/ 78 | 22 | 22.4 | 3.6 | 8.9 |
| 42027 | 12 | DD | 34/ 75 | 12 | -21.9 | 9.2 | 20.6 |
| 44292 | 00 | DD | 48/ 107 | 20 | 10.5 | 9.5 | 19.3 |
| 48455 | 12 | DD | 14/ 101 | 10 | 20.4 | 7.7 | 23.3 |
| 52418 | 00 | DD | 40/ 95 | 28 | -12.5 | 5.9 | 17.0 |
| 57957 | 12 | DD | 25/ 110 | 17 | 14.3 | 4.8 | 19.8 |
| 59134 | 12 | DD | 24/ 118 | 14 | 11.6 | 5.3 | 18.2 |
| 59280 | 12 | DD | 24/ 113 | 17 | 10.4 | 5.0 | 17.9 |
| 61986 | 00 | DD | -16/ 60 | 13 | -14.6 | 6.0 | 27.8 |
| 62337 | 12 | DD | 31/ 34 | 20 | -22.5 | 4.6 | 13.2 |
| 78486 | 12 | DD | 18/ -70 | 11 | 14.9 | 7.1 | 21.4 |
| 78866 | 00 | DD | 18/ -63 | 16 | -14.9 | 2.9 | 18.6 |
| 78866 | 12 | DD | 18/ -63 | 15 | -16.4 | 8.4 | 18.7 |
| 83612 | 00 | DD | -20/ -55 | 20 | 11.0 | 6.0 | 15.9 |
| 83612 | 12 | DD | -20/ -55 | 17 | 12.3 | 6.9 | 19.7 |

# MONITORING OF SATELLITE WINDS

## MONITORING CENTRE: BRACKNELL

## MONTH: August 2000

**Monitoring procedures**

**Period** :One calendar month.

**Data monitored** :Reports from GOES-8, GOES-10, METEOSAT-5, METEOSAT-7, GMS-5, INSAT.

**Standard of comparison** :Background field from UKMO global model.

**Selection Criteria** :number of observations > 10.

**Data Extracted** :Layer 701 - 1000 hPa
401 - 700 hPa
101 - 400 hPa

:Mean wind

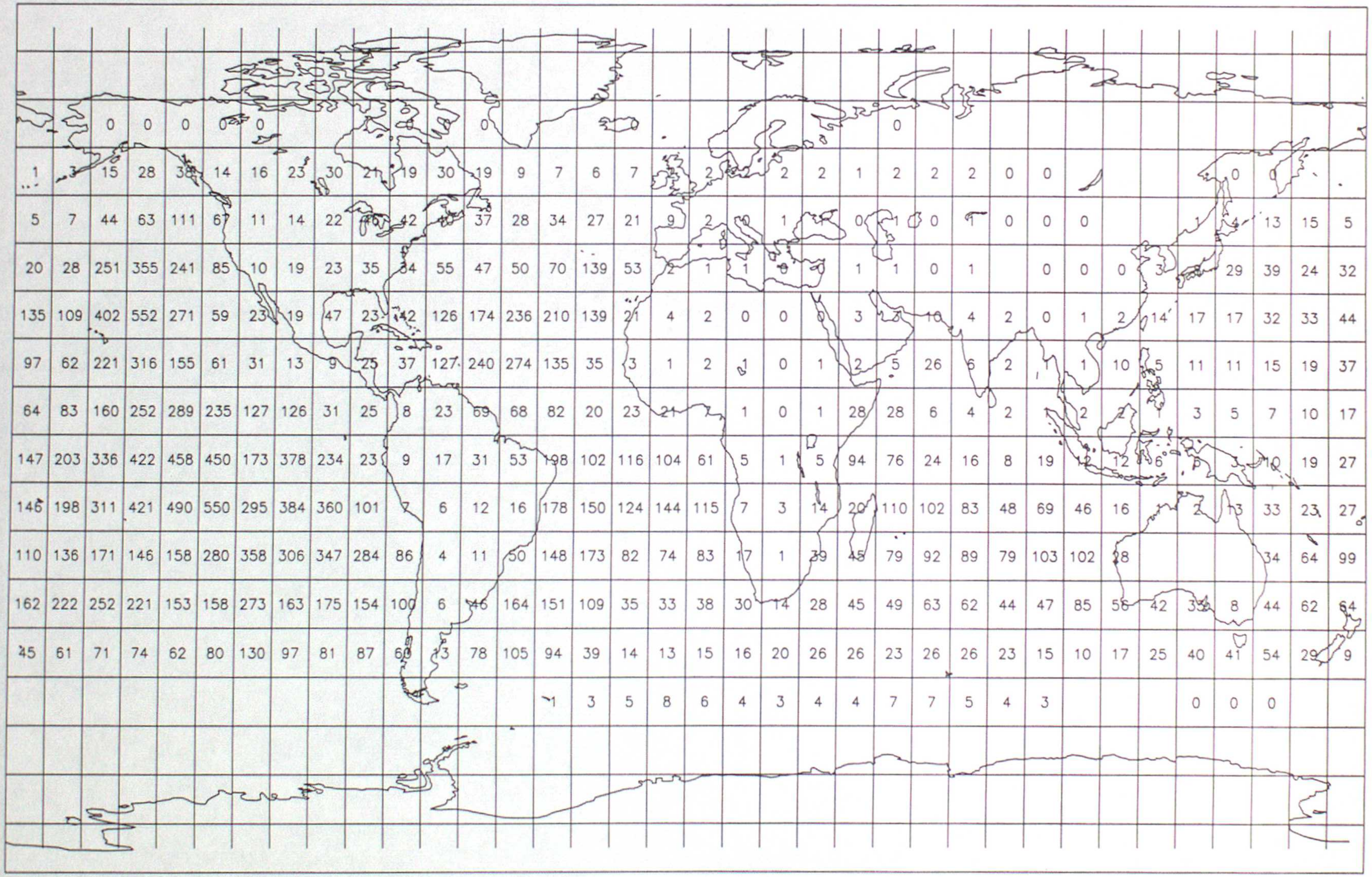
:Mean observation minus background vector wind differences

:Mean observation minus background speed differences

:RMS of observation minus background vector differences

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 701 AND 1000 HPA FIGURE 10
AUGUST 2000

GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 26697

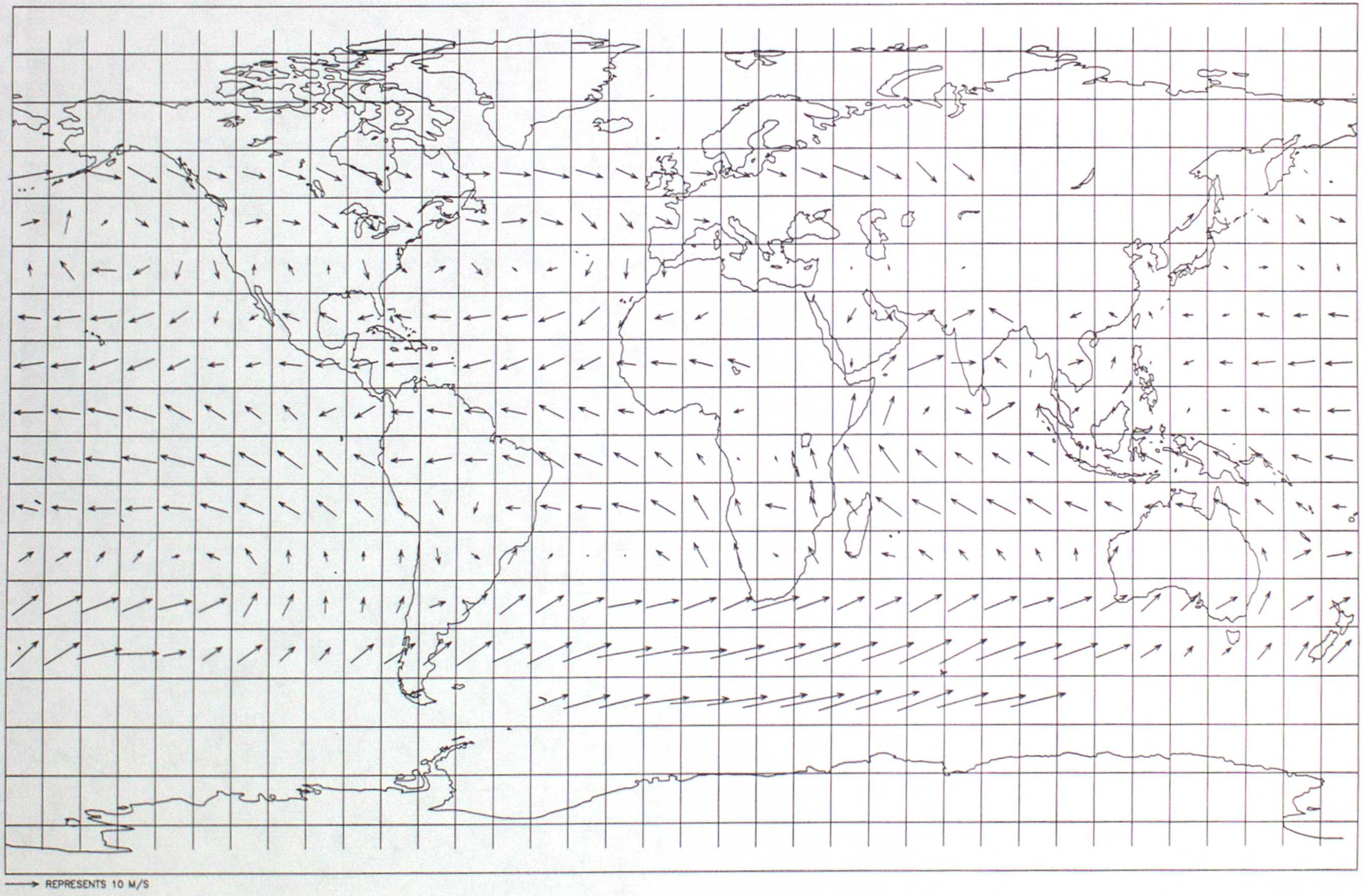


| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0 | 0 | 0 | 0 | 0 | | | | 0 | 0 | 0 | | | | 0 | | | | | | | 0 | | | | | | | | | | | | |
| 1 | 3 | 15 | 28 | 38 | 14 | 16 | 23 | 30 | 21 | 19 | 30 | 19 | 9 | 7 | 6 | 7 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 0 | 0 | | | | | 0 | 0 | | |
| 5 | 7 | 44 | 63 | 111 | 67 | 11 | 14 | 22 | 46 | 42 | 40 | 37 | 28 | 34 | 27 | 21 | 9 | 2 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | | | 1 | 4 | 13 | 15 | 5 |
| 20 | 28 | 251 | 355 | 241 | 85 | 10 | 19 | 23 | 35 | 34 | 55 | 47 | 50 | 70 | 139 | 53 | 2 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | | 0 | 0 | 0 | 3 | 8 | 29 | 39 | 24 | 32 |
| 135 | 109 | 402 | 552 | 271 | 59 | 23 | 19 | 47 | 23 | 42 | 126 | 174 | 236 | 210 | 139 | 21 | 4 | 2 | 0 | 0 | 0 | 3 | 3 | 10 | 4 | 2 | 0 | 1 | 2 | 14 | 17 | 17 | 32 | 33 | 44 |
| 97 | 62 | 221 | 316 | 155 | 61 | 31 | 13 | 9 | 25 | 37 | 127 | 240 | 274 | 135 | 35 | 3 | 1 | 2 | 1 | 0 | 1 | 2 | 5 | 26 | 6 | 2 | 1 | 1 | 10 | 5 | 11 | 11 | 15 | 19 | 37 |
| 64 | 83 | 160 | 252 | 289 | 235 | 127 | 126 | 31 | 25 | 8 | 23 | 69 | 68 | 82 | 20 | 23 | 21 | 7 | 1 | 0 | 1 | 28 | 28 | 6 | 4 | 2 | 1 | 2 | 2 | 1 | 3 | 5 | 7 | 10 | 17 |
| 147 | 203 | 336 | 422 | 458 | 450 | 173 | 378 | 234 | 23 | 9 | 17 | 31 | 53 | 198 | 102 | 116 | 104 | 61 | 5 | 1 | 5 | 94 | 76 | 24 | 16 | 8 | 19 | 12 | 12 | 6 | 5 | 3 | 10 | 19 | 27 |
| 146 | 198 | 311 | 421 | 490 | 550 | 295 | 384 | 360 | 101 | 7 | 6 | 12 | 16 | 178 | 150 | 124 | 144 | 115 | 7 | 3 | 14 | 20 | 110 | 102 | 83 | 48 | 69 | 46 | 16 | | 2 | 13 | 33 | 23 | 27 |
| 110 | 136 | 171 | 146 | 158 | 280 | 358 | 306 | 347 | 284 | 86 | 4 | 11 | 50 | 148 | 173 | 82 | 74 | 83 | 17 | 1 | 39 | 45 | 79 | 92 | 89 | 79 | 103 | 102 | 28 | | | | 34 | 64 | 99 |
| 162 | 222 | 252 | 221 | 153 | 158 | 273 | 163 | 175 | 154 | 100 | 6 | 46 | 164 | 151 | 109 | 35 | 33 | 38 | 30 | 14 | 28 | 45 | 49 | 63 | 62 | 44 | 47 | 85 | 56 | 42 | 33 | 8 | 44 | 62 | 64 |
| 45 | 61 | 71 | 74 | 62 | 80 | 130 | 97 | 81 | 87 | 60 | 13 | 78 | 105 | 94 | 39 | 14 | 13 | 15 | 16 | 20 | 26 | 26 | 23 | 26 | 26 | 23 | 15 | 10 | 17 | 25 | 40 | 41 | 54 | 29 | 9 |
| | | | | | | | | | | | | | | 1 | 3 | 5 | 8 | 6 | 4 | 3 | 4 | 4 | 7 | 7 | 5 | 4 | 3 | | | | 0 | 0 | 0 | | |

SATOB METEOSAT W/V VECTOR MEAN WINDS BETWEEN 701–1000 HPA

FIGURE 11

AUGUST 2000
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT


REPRESENTS 10 M/S

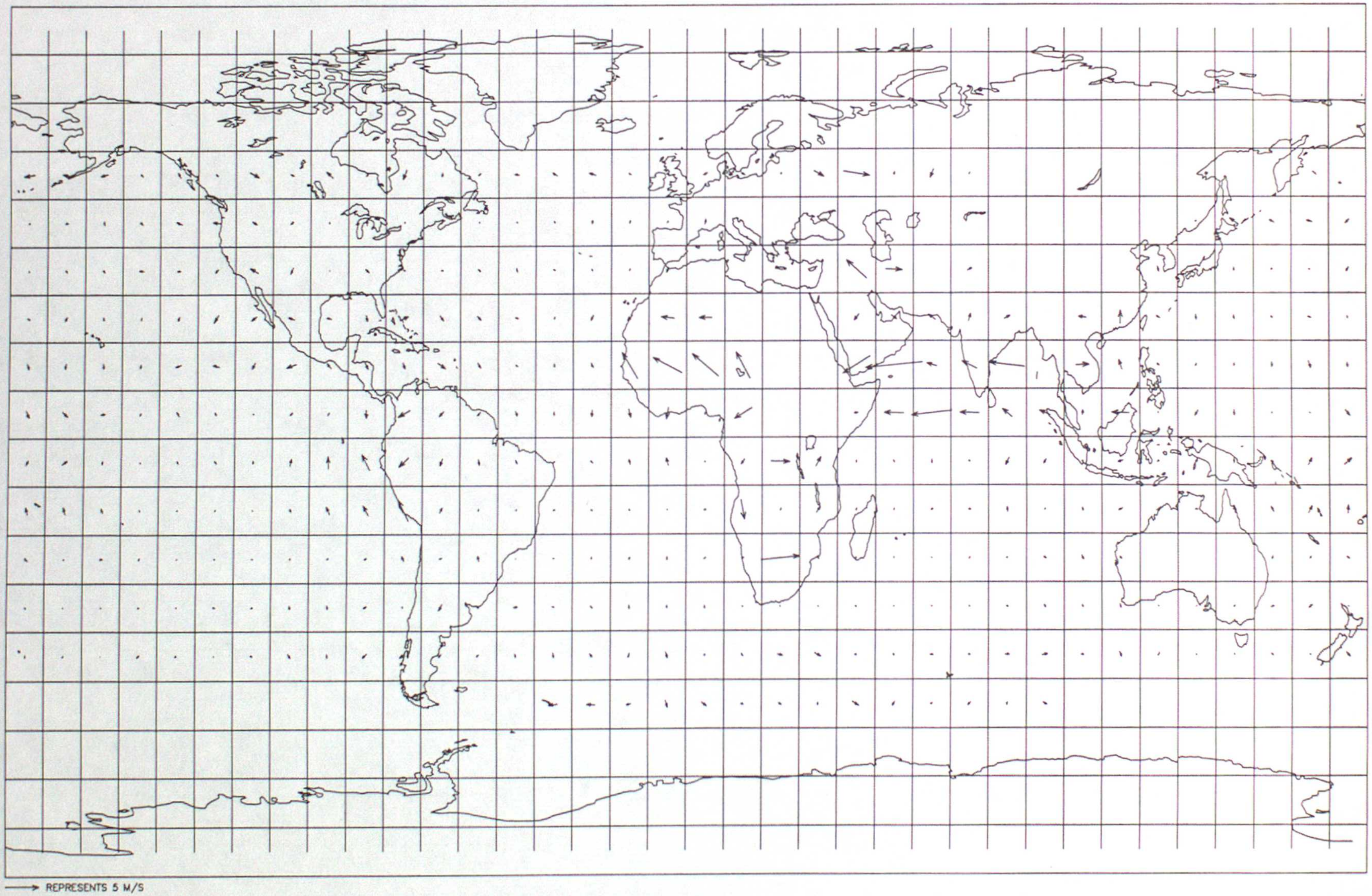
SATOB O-B VECTOR WIND DIFFERENCES BETWEEN 701-1000 HPA

AUGUST 2000

ALL OBSERVATIONS

ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 12

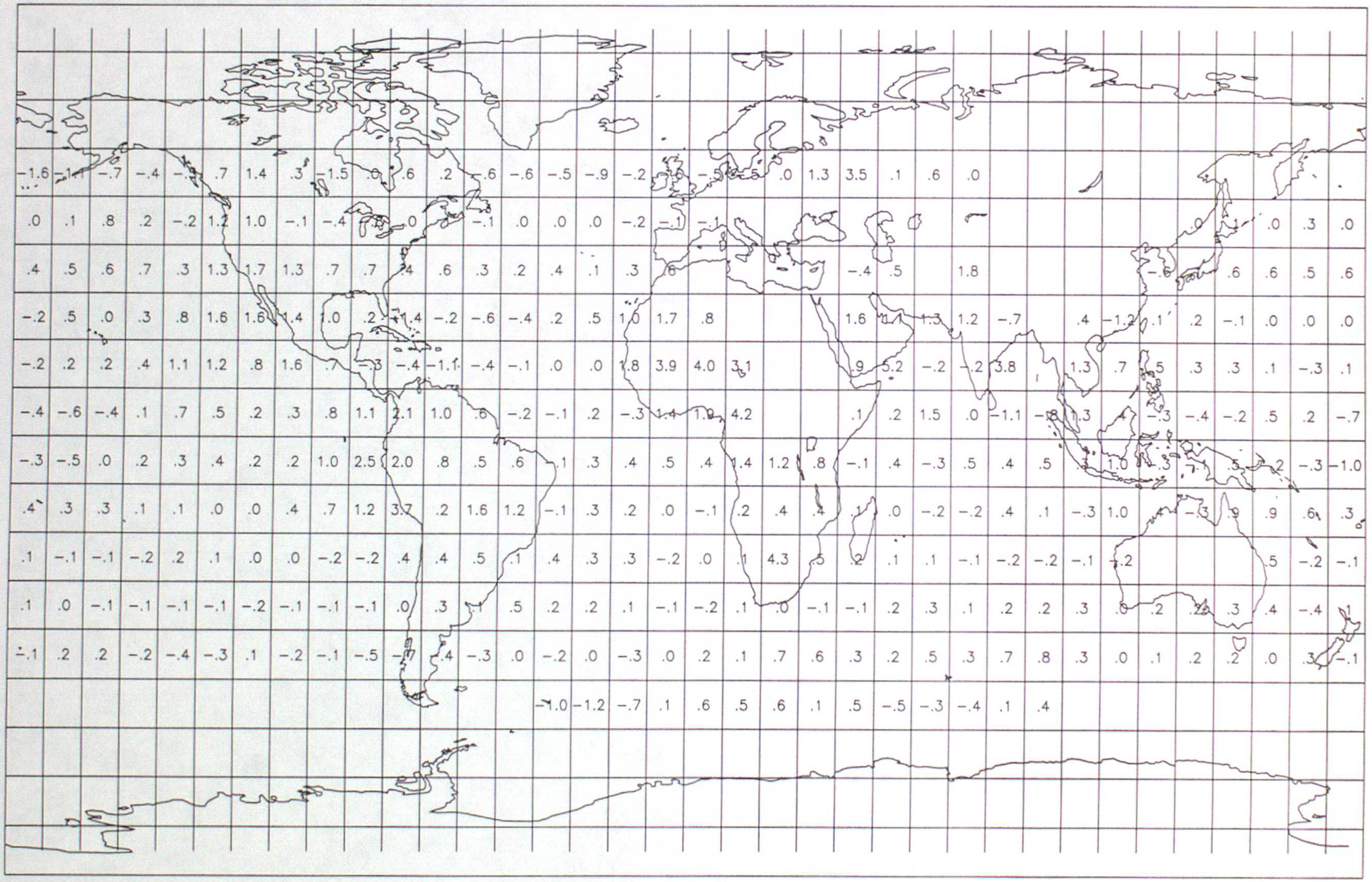


SATOBS : MEAN O-B SPEED DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 13

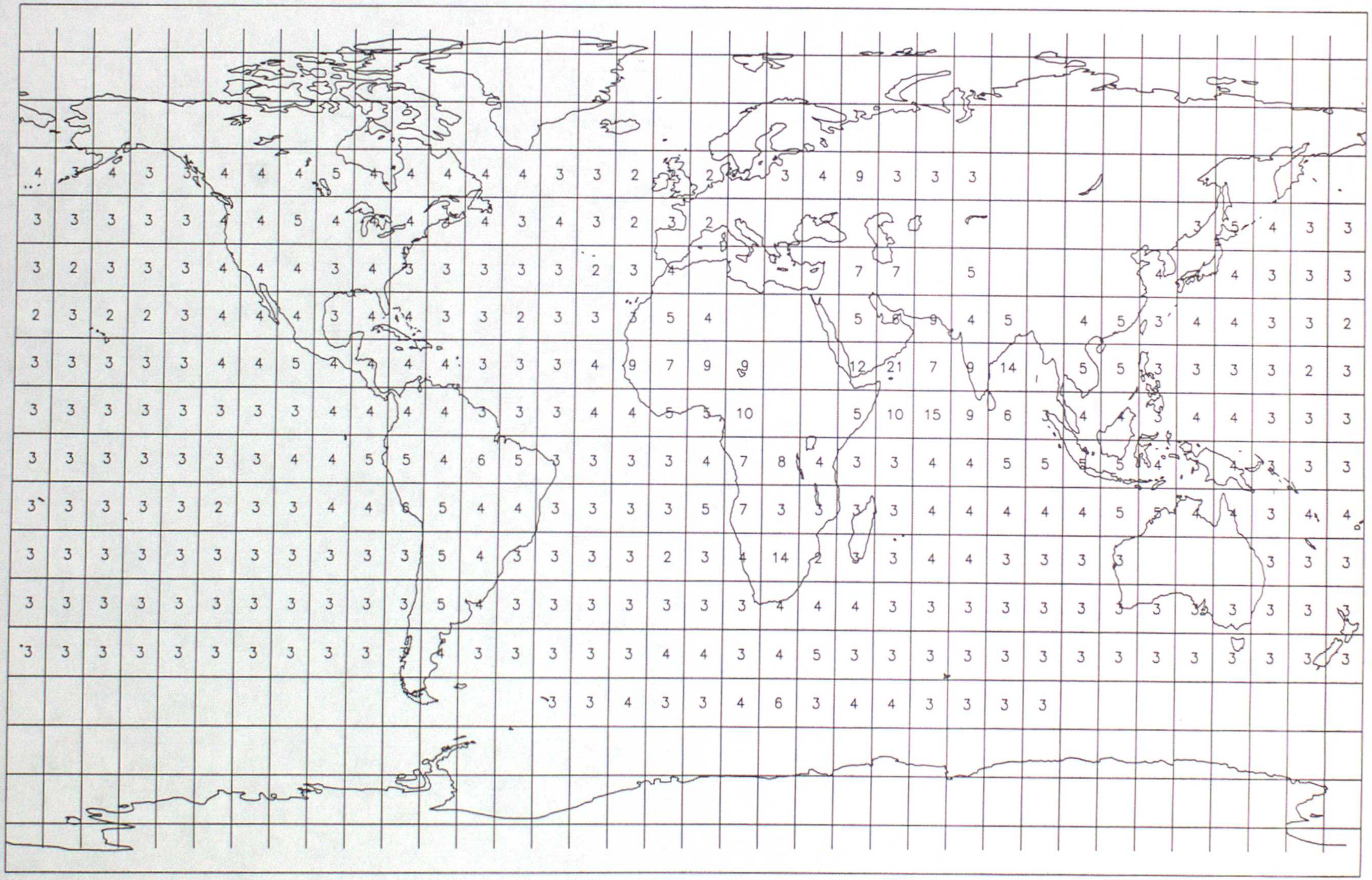
AUGUST 2000

USING ALL OBSERVATIONS

VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT

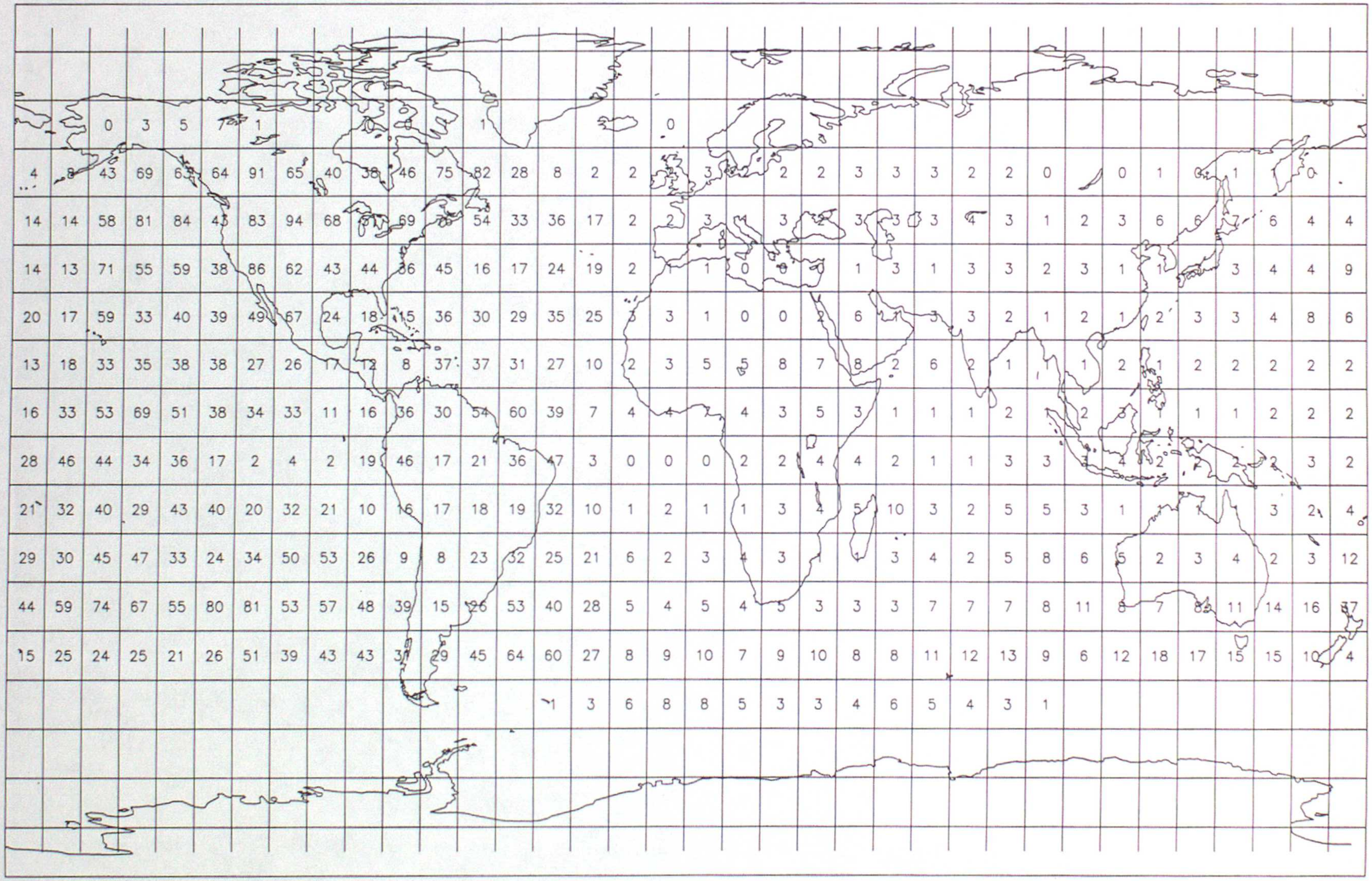

-1.6 -1.1 -.7 -.4 -.3 .7 1.4 .3 -1.5 .0 .6 .2 -.6 -.6 -.5 -.9 -.2 -.6 -.5 -.5 .0 1.3 3.5 .1 .6 .0
.0 .1 .8 .2 -.2 1.2 1.0 -.1 -.4 .0 -.1 .0 .0 .0 -.2 -.1 -.1 .0 .1 .0 .3 .0
.4 .5 .6 .7 .3 1.3 1.7 1.3 .7 .7 .4 .6 .3 .2 .4 .1 .3 .6 -.4 .5 1.8 -.6 .6 .6 .5 .6
-.2 .5 .0 .3 .8 1.6 1.6 1.4 1.0 .2 -1.4 -.2 -.6 -.4 .2 .5 1.0 1.7 .8 1.6 1.1 1.3 1.2 -.7 .4 -1.2 .1 .2 -.1 .0 .0 .0
-.2 .2 .2 .4 1.1 1.2 .8 1.6 .7 -.3 -.4 -1.1 -.4 -.1 .0 .0 1.8 3.9 4.0 3.1 .9 5.2 -.2 -.2 3.8 1.3 .7 .5 .3 .3 .1 -.3 .1
-.4 -.6 -.4 .1 .7 .5 .2 .3 .8 1.1 2.1 1.0 .6 -.2 -.1 .2 -.3 1.4 1.9 4.2 .1 .2 1.5 .0 -1.1 -.8 1.3 .4 -.3 -.4 -.2 .5 .2 -.7
-.3 -.5 .0 .2 .3 .4 .2 .2 1.0 2.5 2.0 .8 .5 .6 .1 .3 .4 .5 .4 1.4 1.2 .8 -.1 .4 -.3 .5 .4 .5 .3 1.0 -.3 .1 .5 .2 -.3 -1.0
.4 .3 .3 .1 .1 .0 .0 .4 .7 1.2 3.7 .2 1.6 1.2 -.1 .3 .2 .0 -.1 .2 .4 .4 .1 .0 -.2 -.2 .4 .1 -.3 1.0 .4 -.3 .9 .9 .6 .3
.1 -.1 -.1 -.2 .2 .1 .0 .0 -.2 -.2 .4 .4 .5 .1 .4 .3 .3 -.2 .0 .1 4.3 .5 .2 .1 .1 -.1 -.2 -.2 -.1 -.2 .5 -.2 -.1
.1 .0 -.1 -.1 -.1 -.1 -.2 -.1 -.1 -.1 .0 .3 .1 .5 .2 .2 .1 -.1 -.2 .1 .0 -.1 -.1 .2 .3 .1 .2 .2 .3 .0 .2 .2 .3 .4 -.4 .1
-.1 .2 .2 -.2 -.4 -.3 .1 -.2 -.1 -.5 -.7 .4 -.3 .0 -.2 .0 -.3 .0 .2 .1 .7 .6 .3 .2 .5 .3 .7 .8 .3 .0 .1 .2 .2 .0 .3 -.1
-1.0 -1.2 -.7 .1 .6 .5 .6 .1 .5 -.5 -.3 -.4 .1 .4

SATOBS : RMS O-B VECTOR DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 14
AUGUST 2000
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


4 3 4 3 3 4 4 4 5 4 4 4 4 4 3 3 2 2 2 3 4 9 3 3 3
3 3 3 3 3 4 4 5 4 4 4 4 4 3 4 3 2 3 2 3 5 4 3 3
3 2 3 3 3 4 4 4 3 4 3 3 3 3 3 2 3 4 7 7 5 4 4 3 3 3
2 3 2 2 3 4 4 4 3 4 4 3 3 2 3 3 3 5 4 5 6 9 4 5 4 5 3 4 4 3 3 2
3 3 3 3 3 4 4 5 4 4 4 4 3 3 3 4 9 7 9 9 12 21 7 9 14 5 5 3 3 3 3 2 3
3 3 3 3 3 3 3 3 4 4 4 4 3 3 3 4 4 5 5 10 5 10 15 9 6 3 4 4 3 4 4 3 3 3
3 3 3 3 3 3 3 4 4 5 5 4 6 5 3 3 3 3 4 7 8 4 3 3 4 4 5 5 5 5 4 3 4 3 3 3
3 3 3 3 3 2 3 3 4 4 6 5 4 4 3 3 3 3 5 7 3 3 3 3 4 4 4 4 4 5 5 4 4 3 4 4
3 3 3 3 3 3 3 3 3 3 3 5 4 3 3 3 3 2 3 4 14 2 3 3 4 4 3 3 3 3 3 3 3
3 3 3 3 3 3 3 3 3 3 3 5 4 3 3 3 3 3 3 3 4 4 4 3 3 3 3 3 3 3 3 3 3 3 3 3
3 3 3 3 3 3 3 3 3 3 3 4 3 3 3 3 3 4 4 3 4 5 3 3 3 3 3 3 3 3 3 3 3 3 3 3
3 3 4 3 3 4 6 3 4 4 3 3 3 3

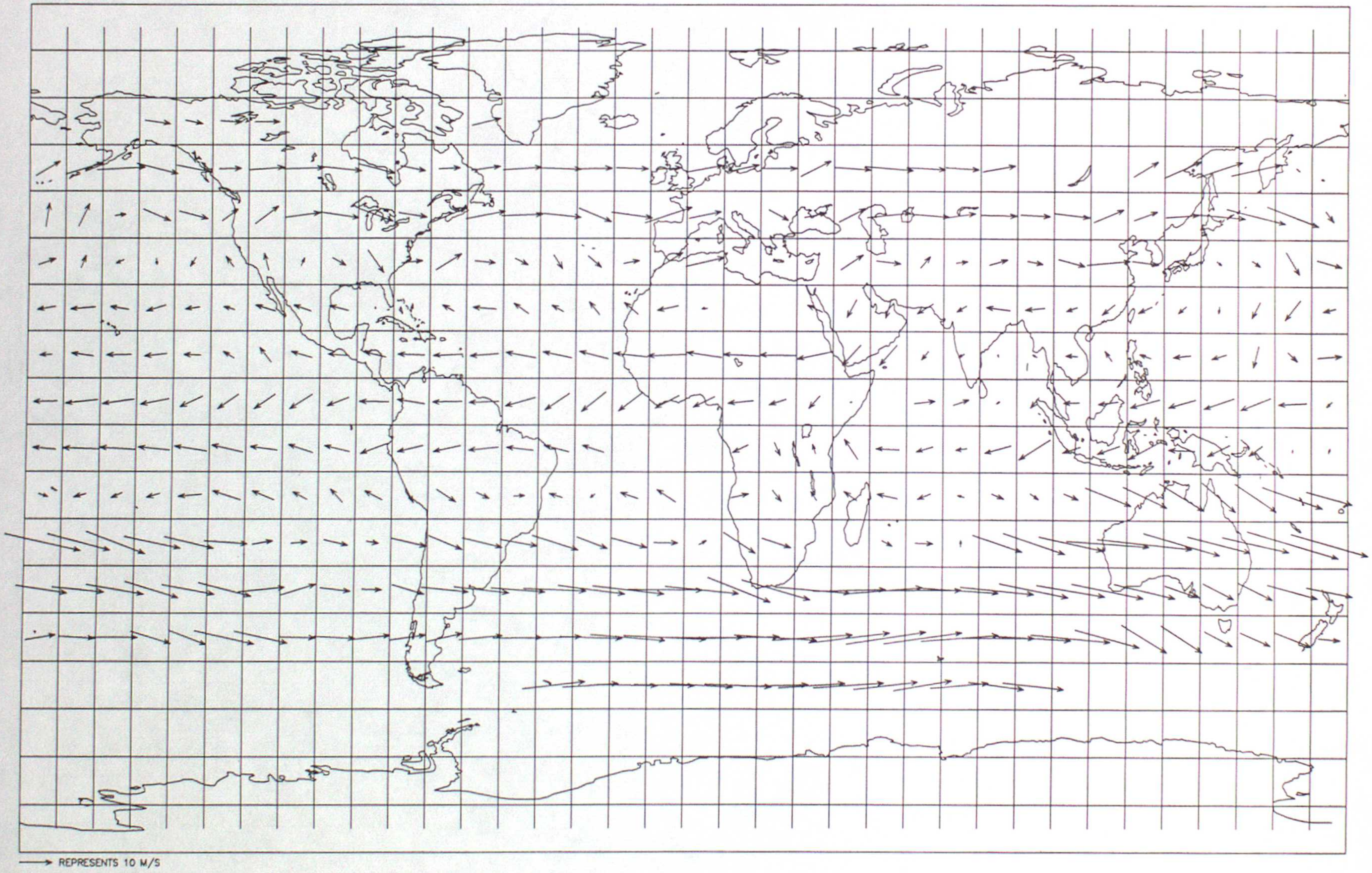
AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 401 AND 700 HPA FIGURE 15
AUGUST 2000

GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 7395


0 3 5 7 1 0 0 1 0
4 8 43 69 63 64 91 65 40 38 46 75 82 28 8 2 2 2 3 2 2 2 3 3 3 2 2 0 0 1 0 1 1 0
14 14 58 81 84 43 83 94 68 51 69 76 54 33 36 17 2 2 3 4 3 2 3 3 3 4 3 1 2 3 6 6 7 6 4 4
14 13 71 55 59 38 86 62 43 44 36 45 16 17 24 19 2 1 1 0 0 0 1 3 1 3 3 2 3 1 1 3 4 4 9
20 17 59 33 40 39 49 67 24 18 15 36 30 29 35 25 3 3 1 0 0 2 6 1 3 3 2 1 2 1 2 3 3 4 8 6
13 18 33 35 38 38 27 26 17 12 8 37 37 31 27 10 2 3 5 5 8 7 8 2 6 2 1 1 1 2 1 2 2 2 2 2
16 33 53 69 51 38 34 33 11 16 36 30 54 60 39 7 4 4 7 4 3 5 3 1 1 1 2 1 2 3 1 1 1 2 2 2
28 46 44 34 36 17 2 4 2 19 46 17 21 36 47 3 0 0 0 2 2 4 4 2 1 1 3 3 3 4 2 2 2 2 3 2
21 32 40 29 43 40 20 32 21 10 16 17 18 19 32 10 1 2 1 1 3 4 5 10 3 2 5 5 3 1 1 1 1 3 2 4
29 30 45 47 33 24 34 50 53 26 9 8 23 32 25 21 6 2 3 4 3 1 1 3 4 2 5 8 6 5 2 3 4 2 3 12
44 59 74 67 55 80 81 53 57 48 39 15 26 53 40 28 5 4 5 4 5 3 3 3 7 7 7 8 11 8 7 83 11 14 16 37
15 25 24 25 21 26 51 39 43 43 31 29 45 64 60 27 8 9 10 7 9 10 8 8 11 12 13 9 6 12 18 17 15 15 10 4
1 3 6 8 8 5 3 3 4 6 5 4 3 1

SATOB VECTOR MEAN WINDS BETWEEN 401-700 HPA
AUGUST 2000
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

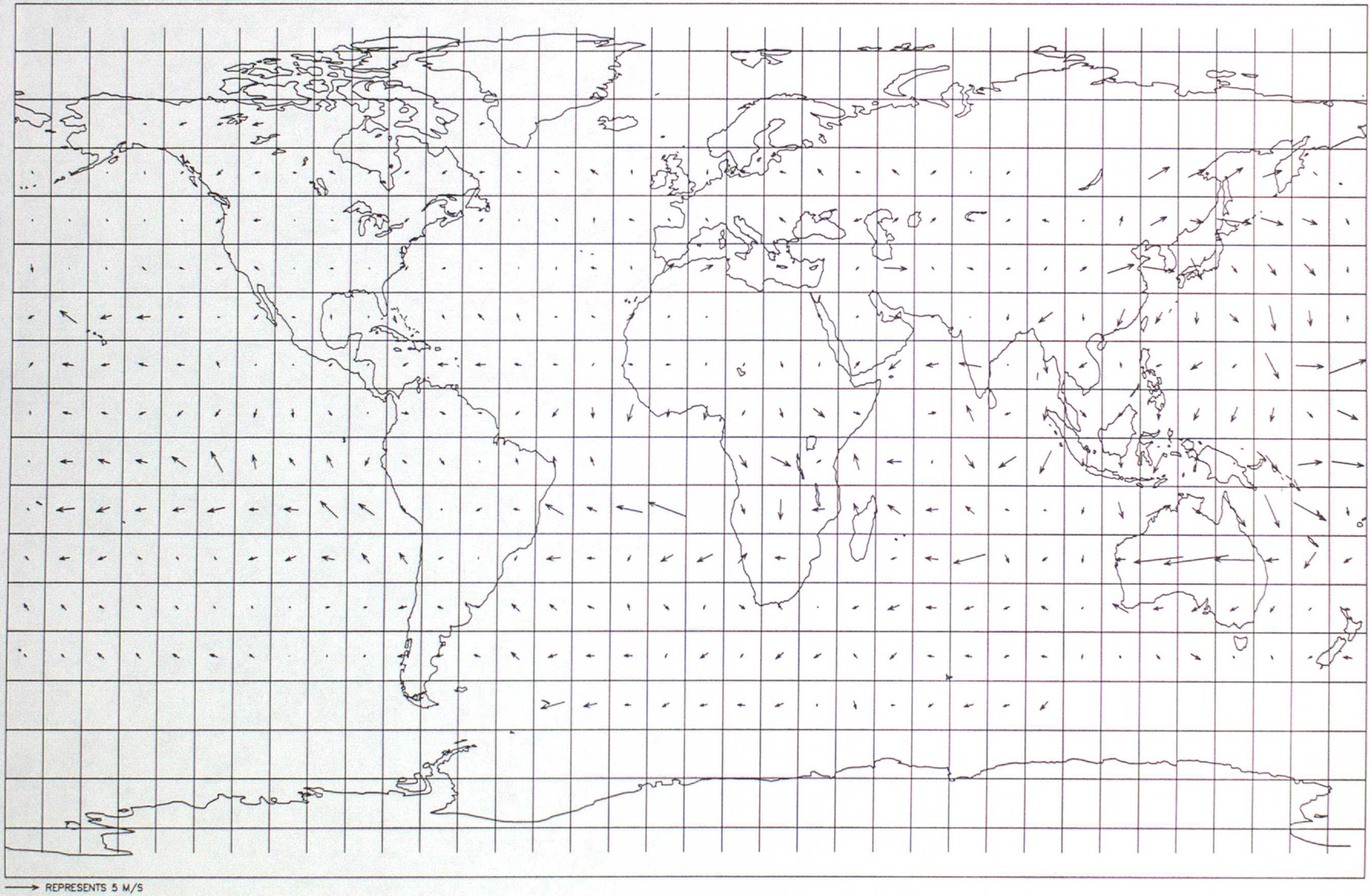
FIGURE 16


REPRESENTS 10 M/S

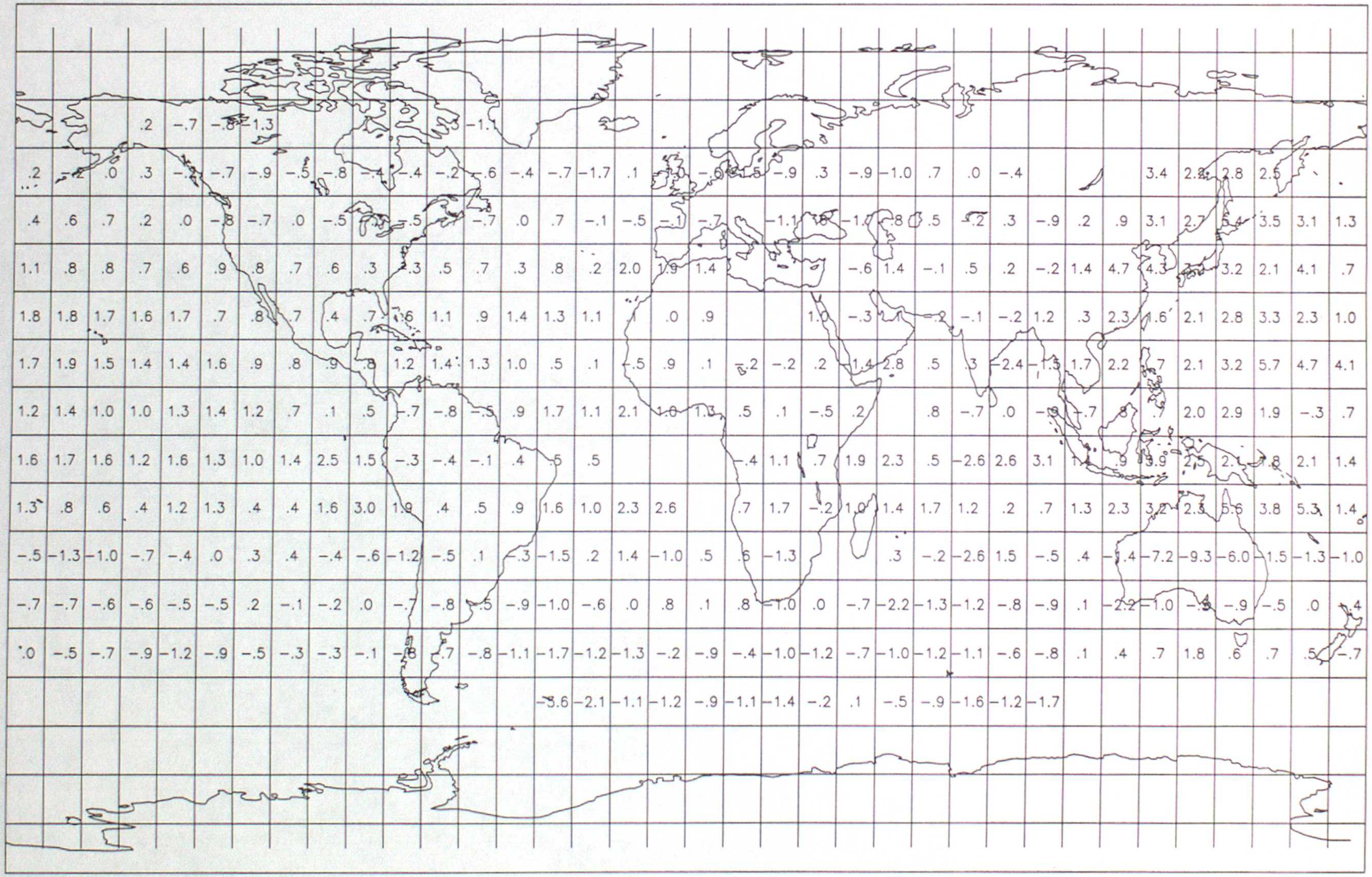
SATOB O–B VECTOR WIND DIFFERENCES BETWEEN 401–700 HPA

FIGURE 17

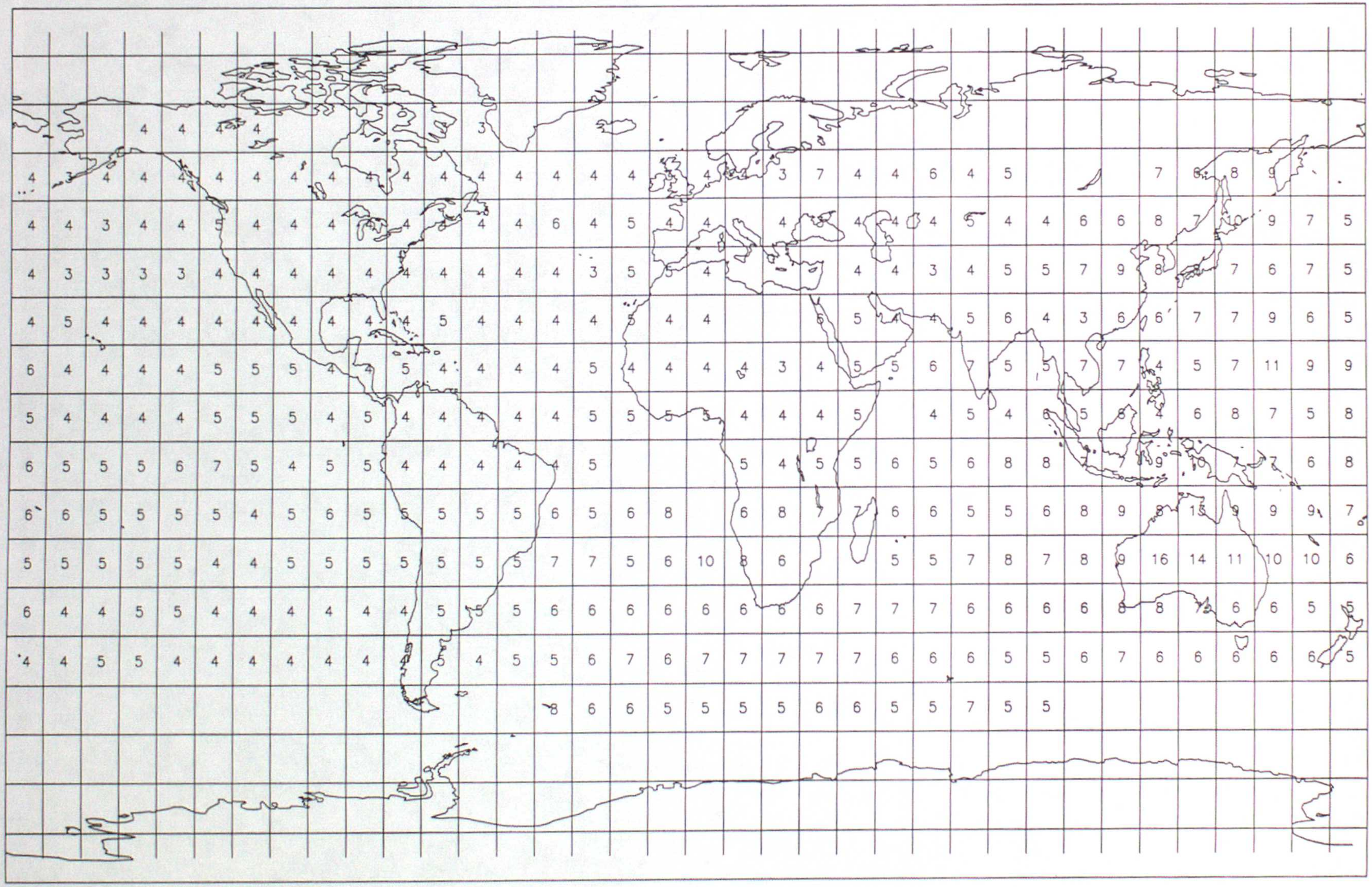
AUGUST 2000
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT



SATOBS : MEAN O-B SPEED DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 18
AUGUST 2000
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT

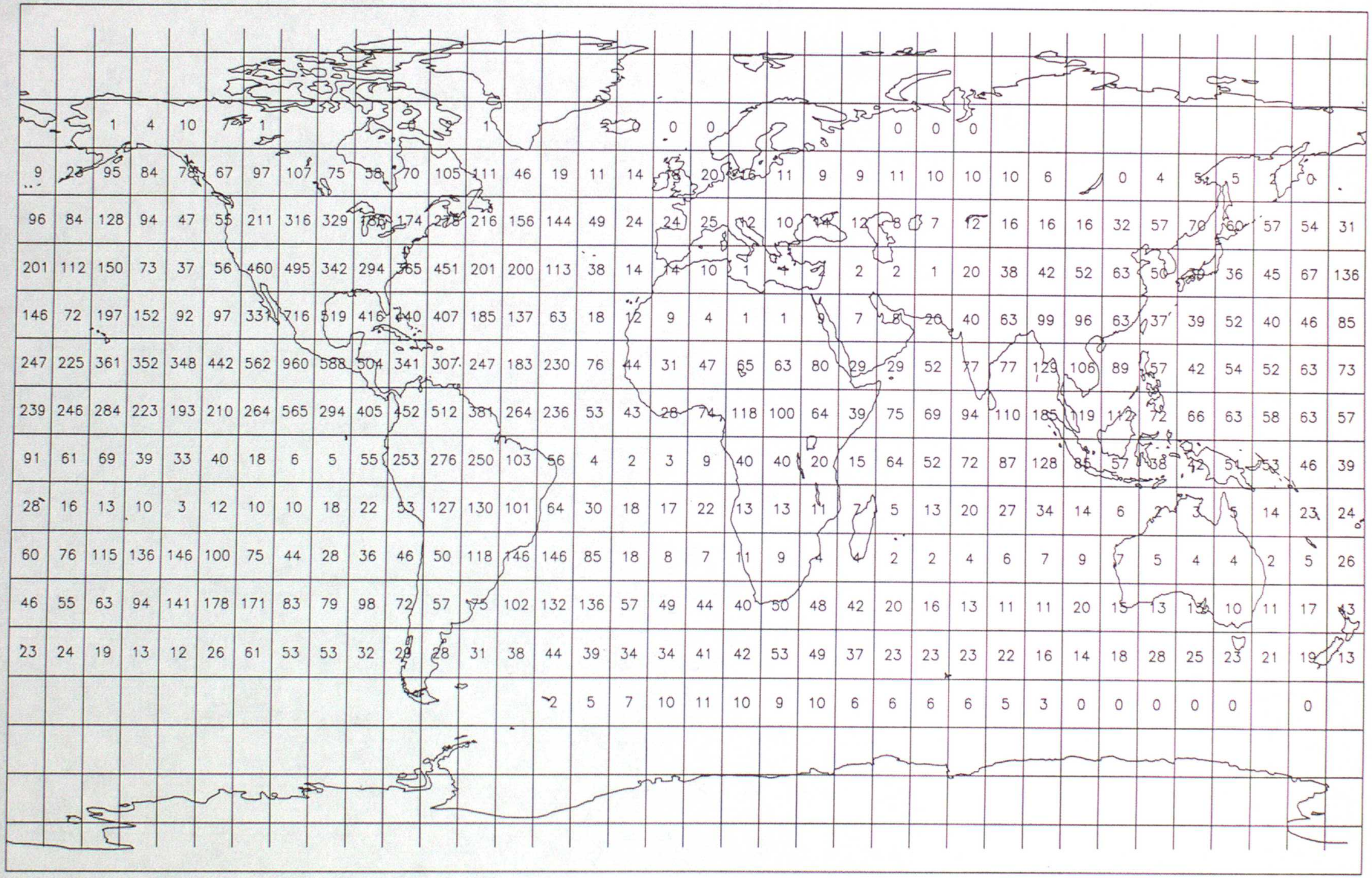

.2 -.7 -.8 -1.3 -.3 -1.
.2 -.2 .0 .3 -.2 -.7 -.9 -.5 -.8 -.4 -.4 -.2 -.6 -.4 -.7 -1.7 .1 -1.0 -.6 -1.5 -.9 .3 -.9 -1.0 .7 .0 -.4 3.4 2.8 2.8 2.5
.4 .6 .7 .2 .0 -.8 -.7 .0 -.5 -.5 -.7 .0 .7 -.1 -.5 -.1 -.7 -1.1 -.8 -1.0 -.8 .5 -.2 .3 -.9 .2 .9 3.1 2.7 5.4 3.5 3.1 1.3
1.1 .8 .8 .7 .6 .9 .8 .7 .6 .3 .3 .5 .7 .3 .8 .2 2.0 1.9 1.4 -.6 1.4 -.1 .5 .2 -.2 1.4 4.7 4.3 3.2 2.1 4.1 .7
1.8 1.8 1.7 1.6 1.7 .7 .8 .7 .4 .7 .6 1.1 .9 1.4 1.3 1.1 .1 .0 .9 1.0 -.3 -.1 -.2 -.1 -.2 1.2 .3 2.3 1.6 2.1 2.8 3.3 2.3 1.0
1.7 1.9 1.5 1.4 1.4 1.6 .9 .8 .9 .8 1.2 1.4 1.3 1.0 .5 .1 -.5 .9 .1 .2 -.2 .2 1.4 2.8 .5 .3 -2.4 -1.5 1.7 2.2 .7 2.1 3.2 5.7 4.7 4.1
1.2 1.4 1.0 1.0 1.3 1.4 1.2 .7 .1 .5 -.7 -.8 -.5 .9 1.7 1.1 2.1 1.0 1.3 .5 .1 -.5 .2 .8 -.7 .0 -.9 -.7 .8 .7 2.0 2.9 1.9 -.3 .7
1.6 1.7 1.6 1.2 1.6 1.3 1.0 1.4 2.5 1.5 -.3 -.4 -.1 .4 .5 .5 -.4 1.1 .7 1.9 2.3 .5 -2.6 2.6 3.1 1.4 .9 3.9 2.5 2.1 1.8 2.1 1.4
1.3 .8 .6 .4 1.2 1.3 .4 .4 1.6 3.0 1.9 .4 .5 .9 1.6 1.0 2.3 2.6 .7 1.7 -.2 1.0 1.4 1.7 1.2 .2 .7 1.3 2.3 3.2 2.3 5.6 3.8 5.3 1.4
-.5 -1.3 -1.0 -.7 -.4 .0 .3 .4 -.4 -.6 -1.2 -.5 .1 -.3 -1.5 .2 1.4 -1.0 .5 .6 -1.3 .3 -.2 -2.6 1.5 -.5 .4 -1.4 -7.2 -9.3 -6.0 -1.5 -1.3 -1.0
-.7 -.7 -.6 -.6 -.5 -.5 .2 -.1 -.2 .0 -.7 -.8 -.5 -.9 -1.0 -.6 .0 .8 .1 .8 -1.0 .0 -.7 -2.2 -1.3 -1.2 -.8 -.9 .1 -2.2 -1.0 -.3 -.9 -.5 .0 .4
.0 -.5 -.7 -.9 -1.2 -.9 -.5 -.3 -.3 -.1 -.8 -.7 -.8 -1.1 -1.7 -1.2 -1.3 -.2 -.9 -.4 -1.0 -1.2 -.7 -1.0 -1.2 -1.1 -.6 -.8 .1 .4 .7 1.8 .6 .7 .5 -.7
-3.6 -2.1 -1.1 -1.2 -.9 -1.1 -1.4 -.2 .1 -.5 -.9 -1.6 -1.2 -1.7

SATOBS : RMS O-B VECTOR DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 19
AUGUST 2000
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT

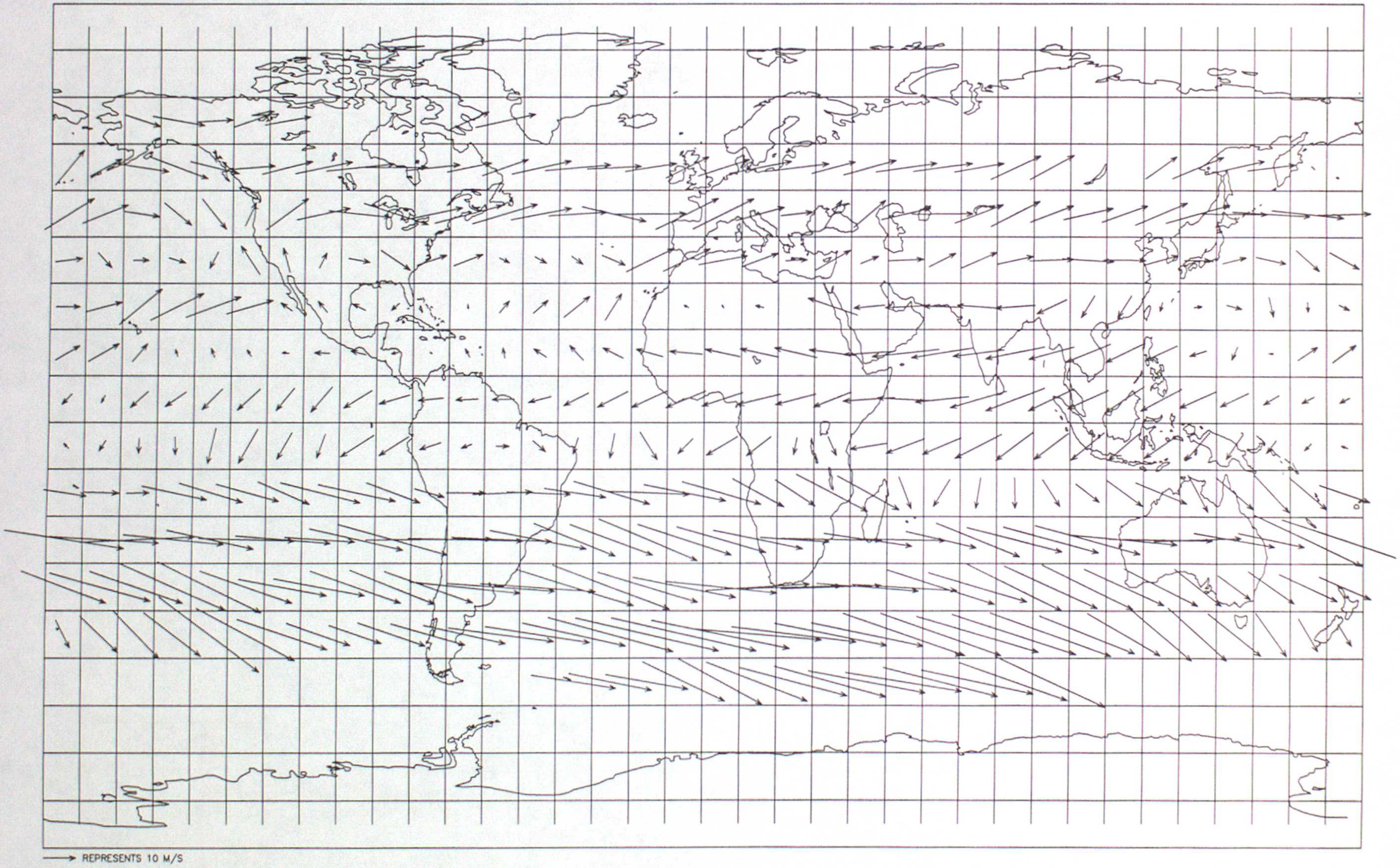

4 4 4 4 3
4 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 3 7 4 4 6 4 5 7 8 8 9
4 4 3 4 4 5 4 4 4 4 4 4 4 4 6 4 5 4 4 4 4 4 4 5 4 4 6 6 8 7 10 9 7 5
4 3 3 3 3 4 4 4 4 4 4 4 4 4 4 3 5 5 4 4 4 3 4 5 5 7 9 8 8 7 6 7 5
4 5 4 4 4 4 4 4 4 4 4 5 4 4 4 4 5 4 4 5 5 4 4 5 6 4 3 6 6 7 7 9 6 5
6 4 4 4 4 5 5 5 4 4 5 4 4 4 4 5 4 4 4 4 3 4 5 5 6 7 5 5 7 7 4 5 7 11 9 9
5 4 4 4 4 5 5 5 4 5 4 4 4 4 4 5 5 5 5 4 4 4 5 4 5 4 6 5 8 4 6 8 7 5 8
6 5 5 5 6 7 5 4 5 5 4 4 4 4 4 5 5 4 5 5 6 5 6 8 8 7 7 9 10 7 7 6 8
6 6 5 5 5 5 4 5 6 5 5 5 5 5 6 5 6 8 6 8 7 7 6 6 5 5 6 8 9 8 13 9 9 9 7
5 5 5 5 5 4 4 5 5 5 5 5 5 5 7 7 5 6 10 8 6 5 5 7 8 7 8 9 16 14 11 10 10 6
6 4 4 5 5 4 4 4 4 4 4 5 5 5 6 6 6 6 6 6 6 6 7 7 7 6 6 6 6 8 8 7 6 6 5 5
4 4 5 5 4 4 4 4 4 4 4 5 4 5 5 6 7 6 7 7 7 7 7 6 6 6 5 5 6 7 6 6 6 6 6 5
8 6 6 5 5 5 5 6 6 5 5 7 5 5

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 101 AND 400 HPA FIGURE 20
AUGUST 2000

GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 35060

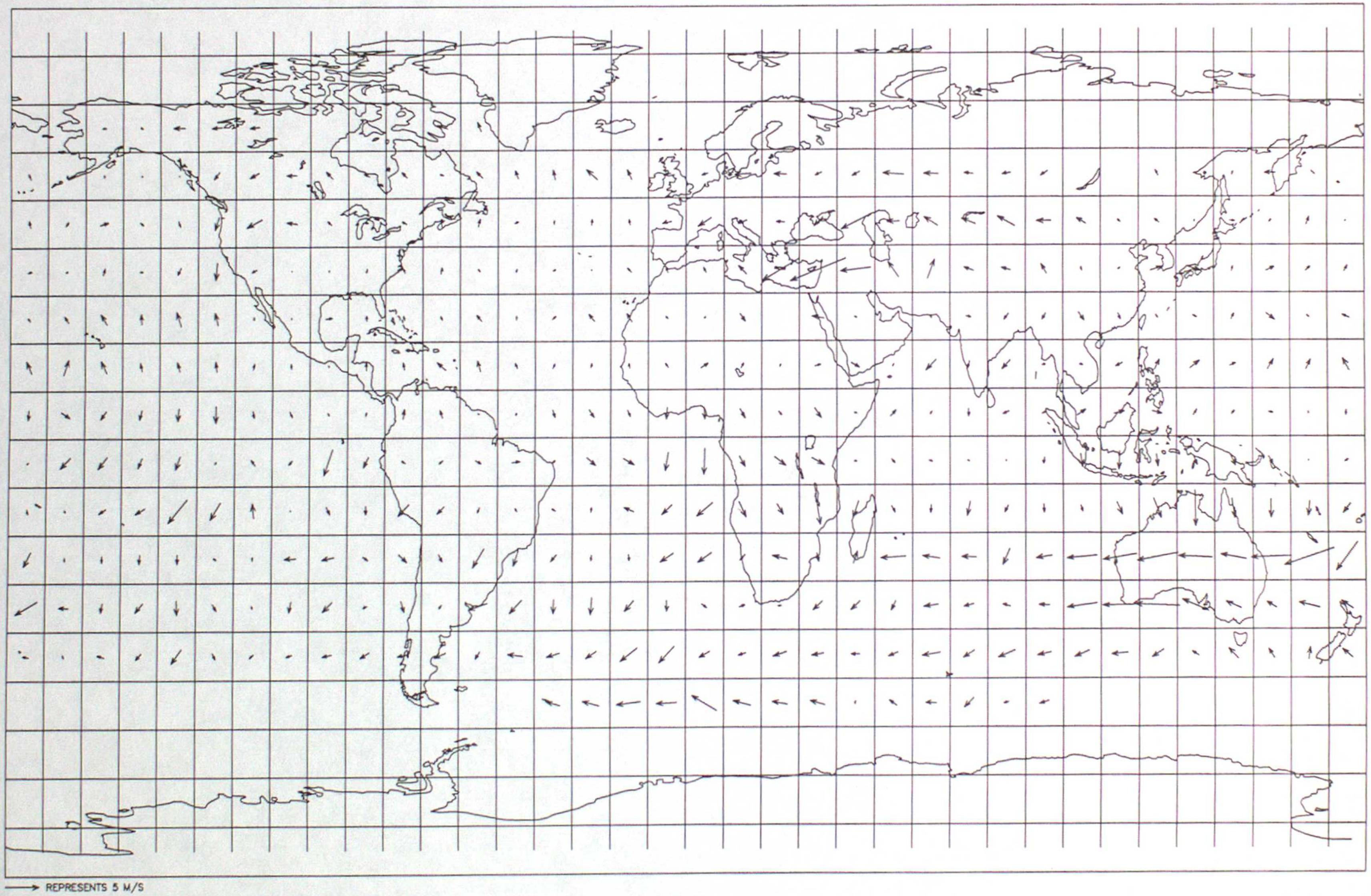

1 4 10 7 1 0 1 0 0 0 0 0 0
9 23 95 84 78 67 97 107 75 58 70 105 111 46 19 11 14 18 20 16 11 9 9 11 10 10 10 6 0 4 5 5 2 0
96 84 128 94 47 55 211 316 329 186 174 278 216 156 144 49 24 24 25 12 10 14 12 8 7 12 16 16 16 32 57 70 60 57 54 31
201 112 150 73 37 56 460 495 342 294 365 451 201 200 113 38 14 14 10 1 4 2 2 2 1 20 38 42 52 63 50 30 36 45 67 136
146 72 197 152 92 97 331 716 519 416 440 407 185 137 63 18 12 9 4 1 1 9 7 8 20 40 63 99 96 63 37 39 52 40 46 85
247 225 361 352 348 442 562 960 588 504 341 307 247 183 230 76 44 31 47 65 63 80 29 29 52 77 77 129 106 89 57 42 54 52 63 73
239 246 284 223 193 210 264 565 294 405 452 512 381 264 236 53 43 28 74 118 100 64 39 75 69 94 110 185 119 112 72 66 63 58 63 57
91 61 69 39 33 40 18 6 5 55 253 276 250 103 56 4 2 3 9 40 40 20 15 64 52 72 87 128 85 57 38 42 51 53 46 39
28 16 13 10 3 12 10 10 18 22 53 127 130 101 64 30 18 17 22 13 13 11 7 5 13 20 27 34 14 6 2 3 5 14 23 24
60 76 115 136 146 100 75 44 28 36 46 50 118 146 146 85 18 8 7 11 9 4 4 2 2 4 6 7 9 7 5 4 4 2 5 26
46 55 63 94 141 178 171 83 79 98 72 57 75 102 132 136 57 49 44 40 50 48 42 20 16 13 11 11 20 15 13 13 10 11 17 43
23 24 19 13 12 26 61 53 53 32 29 28 31 38 44 39 34 34 41 42 53 49 37 23 23 23 22 16 14 18 28 25 23 21 19 13
2 5 7 10 11 10 9 10 6 6 6 6 5 3 0 0 0 0 0 0

SATOB METEOSAT W/V VECTOR MEAN WINDS BETWEEN 101–400 HPA FIGURE 21
AUGUST 2000
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

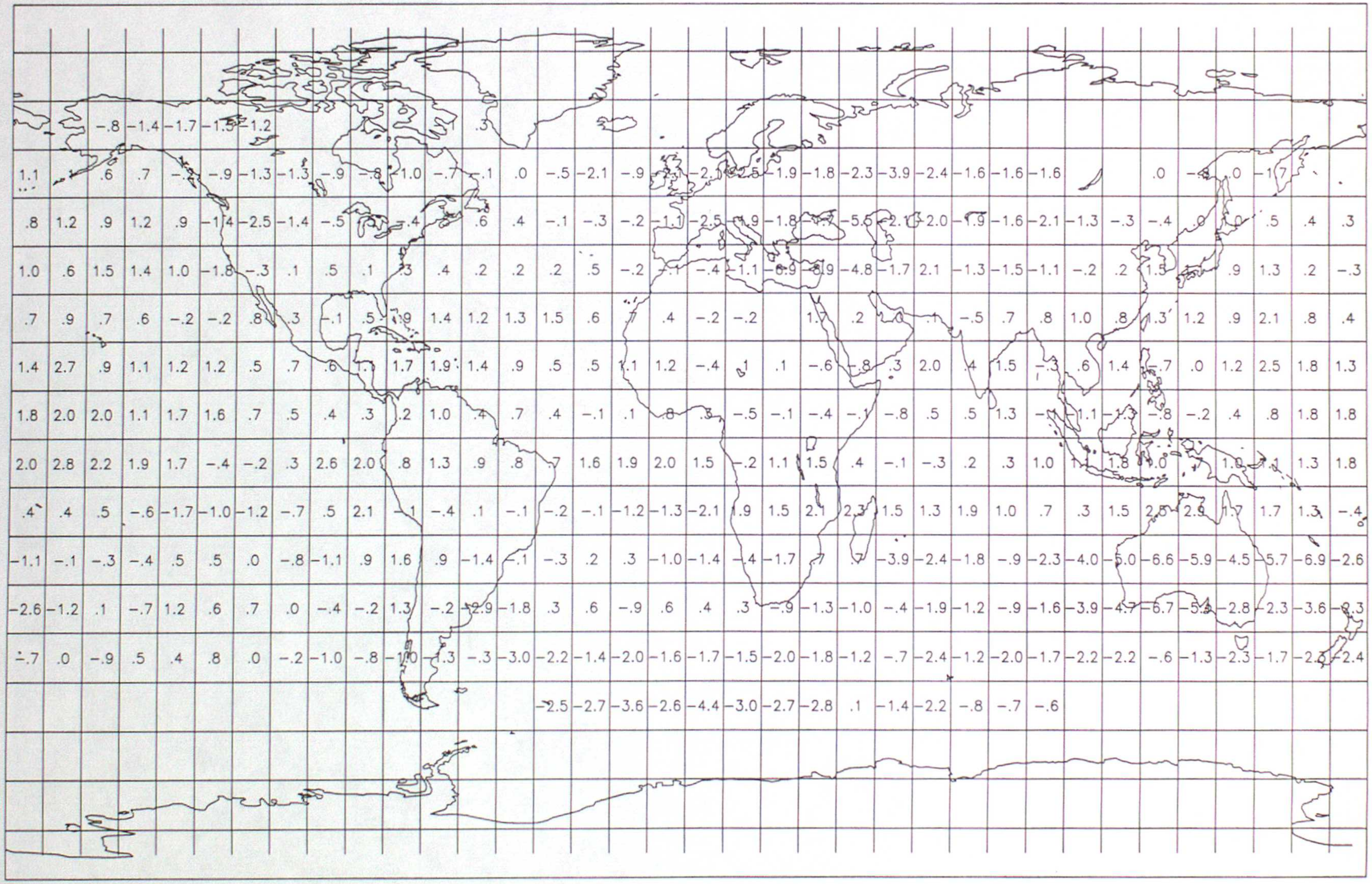

→ REPRESENTS 10 M/S

SATOB O–B VECTOR WIND DIFFERENCES BETWEEN 101–400 HPA
AUGUST 2000
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

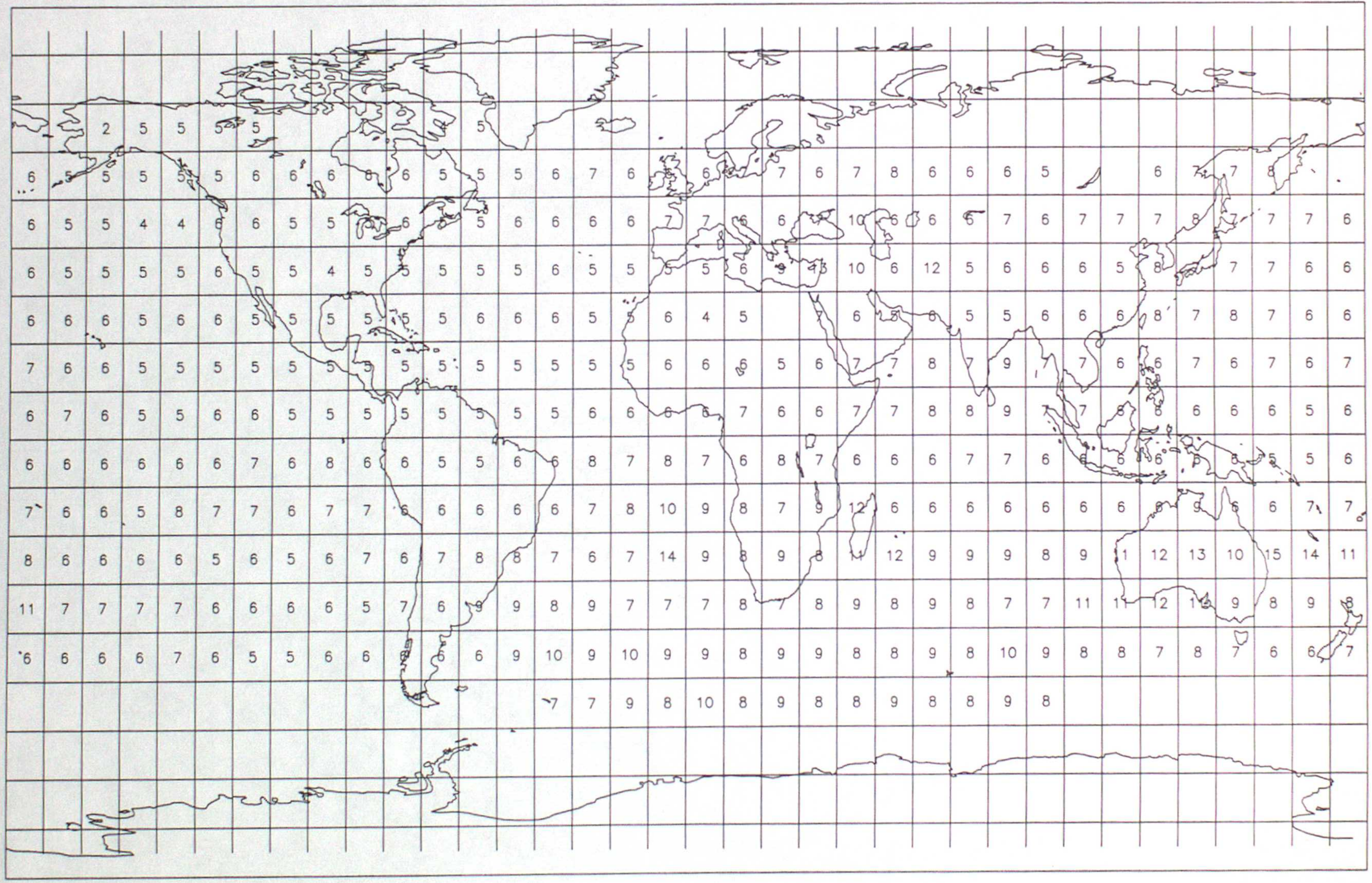
FIGURE 22



SATOBS : MEAN O–B SPEED DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 23
AUGUST 2000
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


-.8 -1.4 -1.7 -1.5 -1.2 .3
1.1 .6 .7 -.9 -1.3 -1.3 -.9 -.8 -1.0 -.7 -.1 .0 -.5 -2.1 -.9 -2.1 -2.1 -2.5 -1.9 -1.8 -2.3 -3.9 -2.4 -1.6 -1.6 -1.6 .0 -.8 .0 -1.7
.8 1.2 .9 1.2 .9 -1.4 -2.5 -1.4 -.5 -.4 .6 .4 -.1 -.3 -.2 -1.1 -2.5 -1.9 -1.8 -1.7 -5.5 -2.1 -2.0 -1.9 -1.6 -2.1 -1.3 -.3 -.4 .0 .0 .5 .4 .3
1.0 .6 1.5 1.4 1.0 -1.8 -.3 .1 .5 .1 .3 .4 .2 .2 .2 .5 -.2 -.1 -.4 -1.1 -6.9 -8.9 -4.8 -1.7 2.1 -1.3 -1.5 -1.1 -.2 .2 1.5 .9 1.3 .2 -.3
.7 .9 .7 .6 -.2 -.2 .8 .3 -.1 .5 .9 1.4 1.2 1.3 1.5 .6 .7 .4 -.2 -.2 1.7 .2 .1 -.5 .7 .8 1.0 .8 1.3 1.2 .9 2.1 .8 .4
1.4 2.7 .9 1.1 1.2 1.2 .5 .7 .6 1.1 1.7 1.9 1.4 .9 .5 .5 1.1 1.2 -.4 .1 .1 -.6 -.8 .3 2.0 .4 1.5 -.3 .6 1.4 -.7 .0 1.2 2.5 1.8 1.3
1.8 2.0 2.0 1.1 1.7 1.6 .7 .5 .4 .3 .2 1.0 .4 .7 .4 -.1 .1 .8 .3 -.5 -.1 -.4 -.1 -.8 .5 .5 1.3 -.1 -1.1 -1.3 -.8 -.2 .4 .8 1.8 1.8
2.0 2.8 2.2 1.9 1.7 -.4 -.2 .3 2.6 2.0 .8 1.3 .9 .8 .7 1.6 1.9 2.0 1.5 -.2 1.1 1.5 .4 -.1 -.3 .2 .3 1.0 1.1 1.8 1.0 .7 1.0 1.1 1.3 1.8
.4 .4 .5 -.6 -1.7 -1.0 -1.2 -.7 .5 2.1 -.1 -.4 .1 -.1 -.2 -.1 -1.2 -1.3 -2.1 1.9 1.5 2.1 2.3 1.5 1.3 1.9 1.0 .7 .3 1.5 2.5 2.9 1.7 1.7 1.3 -.4
-1.1 -.1 -.3 -.4 .5 .5 .0 -.8 -1.1 .9 1.6 .9 -1.4 -.1 -.3 .2 .3 -1.0 -1.4 -.4 -1.7 .7 .7 -3.9 -2.4 -1.8 -.9 -2.3 -4.0 -5.0 -6.6 -5.9 -4.5 -5.7 -6.9 -2.6
-2.6 -1.2 .1 -.7 1.2 .6 .7 .0 -.4 -.2 1.3 -.2 -2.9 -1.8 .3 .6 -.9 .6 .4 .3 -.9 -1.3 -1.0 -.4 -1.9 -1.2 -.9 -1.6 -3.9 -4.7 -6.7 -5.5 -2.8 -2.3 -3.6 -2.3
-.7 .0 -.9 .5 .4 .8 .0 -.2 -1.0 -.8 -1.0 -1.3 -.3 -3.0 -2.2 -1.4 -2.0 -1.6 -1.7 -1.5 -2.0 -1.8 -1.2 -.7 -2.4 -1.2 -2.0 -1.7 -2.2 -2.2 -.6 -1.3 -2.3 -1.7 -2.3 -2.4
-2.5 -2.7 -3.6 -2.6 -4.4 -3.0 -2.7 -2.8 .1 -1.4 -2.2 -.8 -.7 -.6

SATOBS : RMS O-B VECTOR DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 24
AUGUST 2000
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


2 5 5 5 5 5
6 5 5 5 5 5 6 6 6 6 6 5 5 5 6 7 6 6 6 7 7 6 7 8 6 6 6 5 6 7 7 8
6 5 5 4 4 6 6 5 5 5 6 6 5 6 6 6 6 7 7 6 6 7 10 6 6 6 7 6 7 7 7 8 7 7 7 6
6 5 5 5 5 6 5 5 4 5 5 5 5 5 6 5 5 5 5 6 9 13 10 6 12 5 6 6 6 5 8 7 7 6 6
6 6 6 5 6 6 5 5 5 5 5 5 6 6 6 5 5 6 4 5 7 6 5 6 5 5 6 6 6 8 7 8 7 6 6
7 6 6 5 5 5 5 5 5 5 5 5 5 5 5 5 5 6 6 6 5 6 7 7 8 7 9 7 7 6 6 7 6 7 6 7
6 7 6 5 5 6 6 5 5 5 5 5 5 5 5 6 6 6 6 7 6 6 7 7 8 8 9 7 7 6 6 6 6 6 5 6
6 6 6 6 6 6 7 6 8 6 6 5 5 6 6 8 7 8 7 6 8 7 6 6 6 7 7 6 6 6 6 5 8 5 5 6
7 6 6 5 8 7 7 6 7 7 6 6 6 6 6 7 8 10 9 8 7 9 12 6 6 6 6 6 6 6 6 9 6 6 7 7
8 6 6 6 6 5 6 5 6 7 6 7 8 8 7 6 7 14 9 8 9 8 11 12 9 9 9 8 9 11 12 13 10 15 14 11
11 7 7 7 7 6 6 6 6 5 7 6 9 9 8 9 7 7 7 8 7 8 9 8 9 8 7 7 11 11 12 13 9 8 9 8
6 6 6 6 7 6 5 5 6 6 6 6 6 9 10 9 10 9 9 8 9 9 8 8 9 8 10 9 8 8 7 8 7 6 6 7
7 7 9 8 10 8 9 8 8 9 8 8 9 8

# MONITORING OF SATELLITE TEMPERATURES

## MONITORING CENTRE: BRACKNELL

## MONTH: August 2000

**Monitoring procedures**

**Period** :One calendar month.

**Data monitored** :Reports from NOAA-15.

**Standard of comparison** :Background field from UKMO global model.

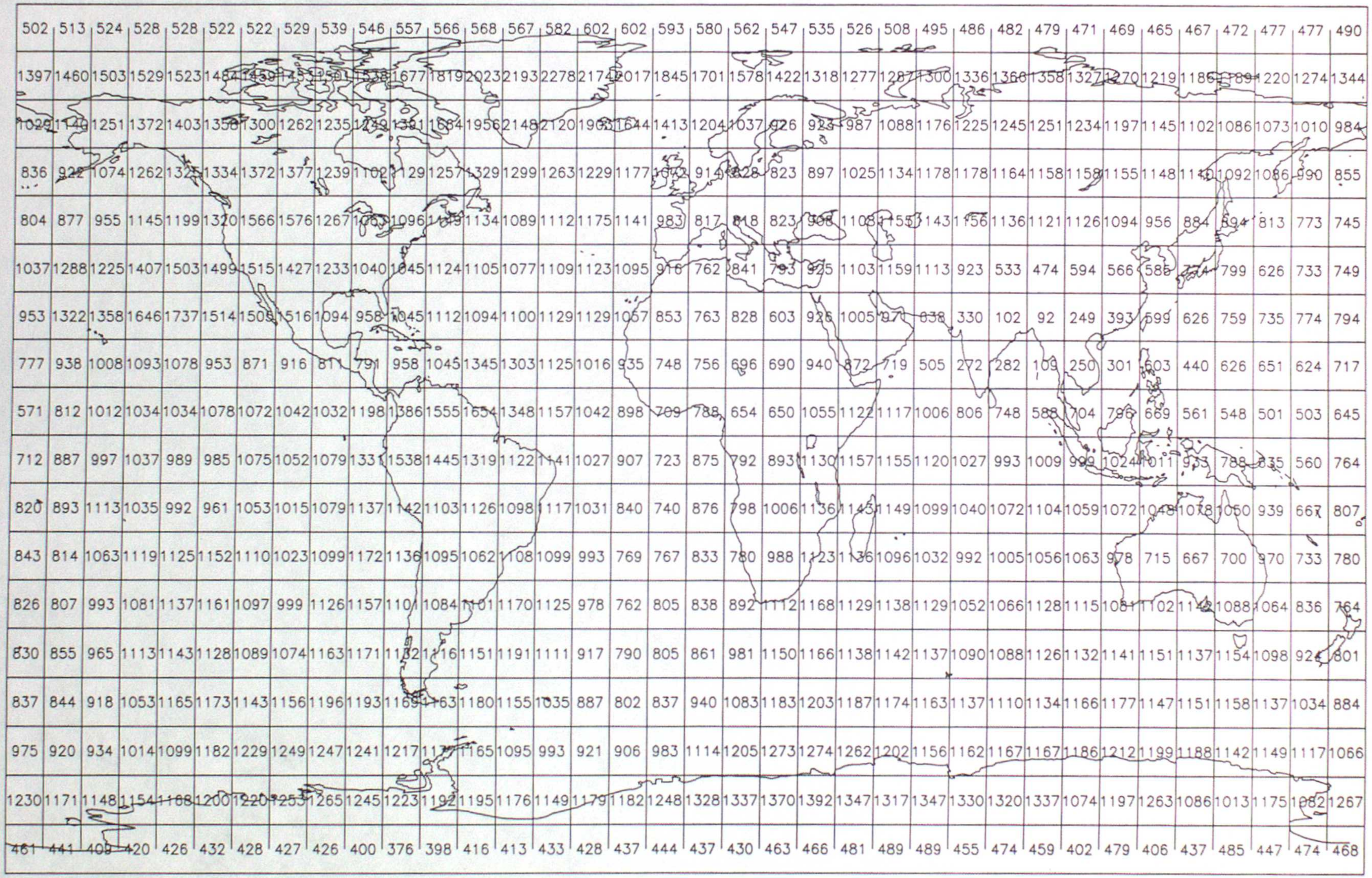
**Selection Criteria** :All soundings.

**Data Extracted** :Sounding channels (and approximate weighting function peaks, hPa)
HIRS8 (Surface)
HIRS15 (700)
HIRS11 (500-700)
HIRS4 (400)
AMSUA5 (700)
AMSUA7 (300)
AMSUA9 (100)

:Mean and standard deviation observation-minus-background brightness temperature differences

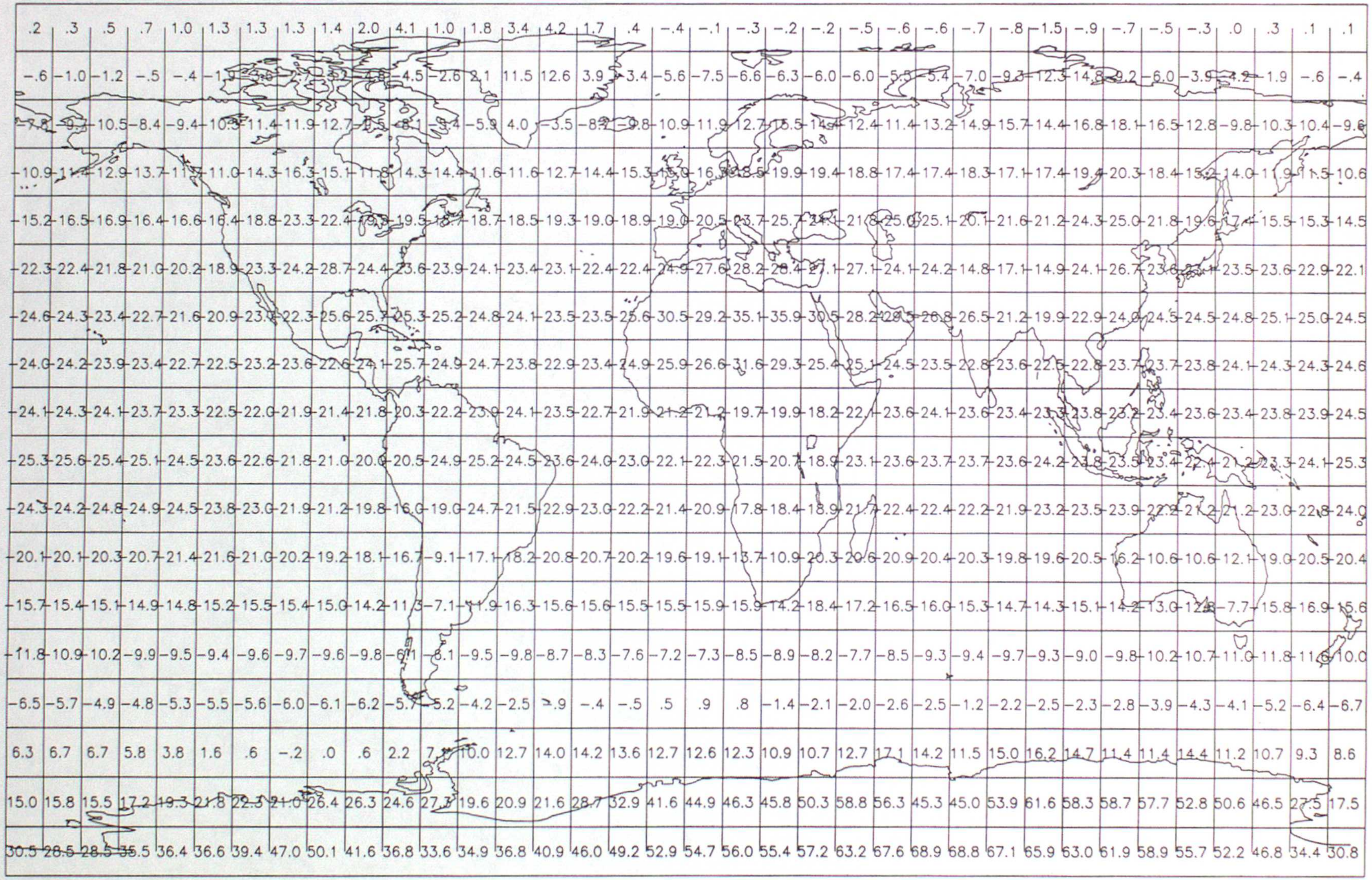
ATOVS : MEAN DAILY NUMBER OF OBSERVATIONS
AUGUST 2000
NOAA-15, USING ALL OBSERVATIONS
GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 652332

FIGURE 25



| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 502 | 513 | 524 | 528 | 528 | 522 | 522 | 529 | 539 | 546 | 557 | 566 | 568 | 567 | 582 | 602 | 602 | 593 | 580 | 562 | 547 | 535 | 526 | 508 | 495 | 486 | 482 | 479 | 471 | 469 | 465 | 467 | 472 | 477 | 477 | 490 |
| 1397 | 1460 | 1503 | 1529 | 1523 | 1484 | 1459 | 1453 | 1501 | 1538 | 1677 | 1819 | 2023 | 2193 | 2278 | 2174 | 2017 | 1845 | 1701 | 1578 | 1422 | 1318 | 1277 | 1287 | 1300 | 1336 | 1366 | 1358 | 1327 | 1270 | 1219 | 1186 | 1189 | 1220 | 1274 | 1344 |
| 1029 | 1140 | 1251 | 1372 | 1403 | 1358 | 1300 | 1262 | 1235 | 1249 | 1381 | 1684 | 1956 | 2148 | 2120 | 1963 | 1644 | 1413 | 1204 | 1037 | 926 | 923 | 987 | 1088 | 1176 | 1225 | 1245 | 1251 | 1234 | 1197 | 1145 | 1102 | 1086 | 1073 | 1010 | 984 |
| 836 | 922 | 1074 | 1262 | 1325 | 1334 | 1372 | 1377 | 1239 | 1102 | 1129 | 1257 | 1329 | 1299 | 1263 | 1229 | 1177 | 1042 | 914 | 828 | 823 | 897 | 1025 | 1134 | 1178 | 1178 | 1164 | 1158 | 1158 | 1155 | 1148 | 1140 | 1092 | 1086 | 990 | 855 |
| 804 | 877 | 955 | 1145 | 1199 | 1320 | 1566 | 1576 | 1267 | 1063 | 1096 | 1119 | 1134 | 1089 | 1112 | 1175 | 1141 | 983 | 817 | 818 | 823 | 908 | 1108 | 1155 | 1143 | 1156 | 1136 | 1121 | 1126 | 1094 | 956 | 884 | 894 | 813 | 773 | 745 |
| 1037 | 1288 | 1225 | 1407 | 1503 | 1499 | 1515 | 1427 | 1233 | 1040 | 1045 | 1124 | 1105 | 1077 | 1109 | 1123 | 1095 | 916 | 762 | 841 | 793 | 925 | 1103 | 1159 | 1113 | 923 | 533 | 474 | 594 | 566 | 585 | 774 | 799 | 626 | 733 | 749 |
| 953 | 1322 | 1358 | 1646 | 1737 | 1514 | 1505 | 1516 | 1094 | 958 | 1045 | 1112 | 1094 | 1100 | 1129 | 1129 | 1057 | 853 | 763 | 828 | 603 | 926 | 1005 | 971 | 838 | 330 | 102 | 92 | 249 | 393 | 599 | 626 | 759 | 735 | 774 | 794 |
| 777 | 938 | 1008 | 1093 | 1078 | 953 | 871 | 916 | 811 | 791 | 958 | 1045 | 1345 | 1303 | 1125 | 1016 | 935 | 748 | 756 | 696 | 690 | 940 | 872 | 719 | 505 | 272 | 282 | 109 | 250 | 301 | 603 | 440 | 626 | 651 | 624 | 717 |
| 571 | 812 | 1012 | 1034 | 1034 | 1078 | 1072 | 1042 | 1032 | 1198 | 1386 | 1555 | 1654 | 1348 | 1157 | 1042 | 898 | 709 | 788 | 654 | 650 | 1055 | 1122 | 1117 | 1006 | 806 | 748 | 588 | 704 | 796 | 669 | 561 | 548 | 501 | 503 | 645 |
| 712 | 887 | 997 | 1037 | 989 | 985 | 1075 | 1052 | 1079 | 1331 | 1538 | 1445 | 1319 | 1122 | 1141 | 1027 | 907 | 723 | 875 | 792 | 893 | 1130 | 1157 | 1155 | 1120 | 1027 | 993 | 1009 | 999 | 1024 | 1011 | 933 | 788 | 835 | 560 | 764 |
| 820 | 893 | 1113 | 1035 | 992 | 961 | 1053 | 1015 | 1079 | 1137 | 1142 | 1103 | 1126 | 1098 | 1117 | 1031 | 840 | 740 | 876 | 798 | 1006 | 1136 | 1143 | 1149 | 1099 | 1040 | 1072 | 1104 | 1059 | 1072 | 1048 | 1078 | 1050 | 939 | 667 | 807 |
| 843 | 814 | 1063 | 1119 | 1125 | 1152 | 1110 | 1023 | 1099 | 1172 | 1136 | 1095 | 1062 | 1108 | 1099 | 993 | 769 | 767 | 833 | 780 | 988 | 1123 | 1136 | 1096 | 1032 | 992 | 1005 | 1056 | 1063 | 978 | 715 | 667 | 700 | 970 | 733 | 780 |
| 826 | 807 | 993 | 1081 | 1137 | 1161 | 1097 | 999 | 1126 | 1157 | 1101 | 1084 | 1101 | 1170 | 1125 | 978 | 762 | 805 | 838 | 892 | 1112 | 1168 | 1129 | 1138 | 1129 | 1052 | 1066 | 1128 | 1115 | 1081 | 1102 | 1142 | 1088 | 1064 | 836 | 764 |
| 830 | 855 | 965 | 1113 | 1143 | 1128 | 1089 | 1074 | 1163 | 1171 | 1132 | 1116 | 1151 | 1191 | 1111 | 917 | 790 | 805 | 861 | 981 | 1150 | 1166 | 1138 | 1142 | 1137 | 1090 | 1088 | 1126 | 1132 | 1141 | 1151 | 1137 | 1154 | 1098 | 924 | 801 |
| 837 | 844 | 918 | 1053 | 1165 | 1173 | 1143 | 1156 | 1196 | 1193 | 1169 | 1163 | 1180 | 1155 | 1035 | 887 | 802 | 837 | 940 | 1083 | 1183 | 1203 | 1187 | 1174 | 1163 | 1137 | 1110 | 1134 | 1166 | 1177 | 1147 | 1151 | 1158 | 1137 | 1034 | 884 |
| 975 | 920 | 934 | 1014 | 1099 | 1182 | 1229 | 1249 | 1247 | 1241 | 1217 | 1177 | 1165 | 1095 | 993 | 921 | 906 | 983 | 1114 | 1205 | 1273 | 1274 | 1262 | 1202 | 1156 | 1162 | 1167 | 1167 | 1186 | 1212 | 1199 | 1188 | 1142 | 1149 | 1117 | 1066 |
| 1230 | 1171 | 1148 | 1154 | 1168 | 1200 | 1220 | 1253 | 1265 | 1245 | 1223 | 1192 | 1195 | 1176 | 1149 | 1179 | 1182 | 1248 | 1328 | 1337 | 1370 | 1392 | 1347 | 1317 | 1347 | 1330 | 1320 | 1337 | 1074 | 1197 | 1263 | 1086 | 1013 | 1175 | 1082 | 1267 |
| 461 | 441 | 409 | 420 | 426 | 432 | 428 | 427 | 426 | 400 | 376 | 398 | 416 | 413 | 433 | 428 | 437 | 444 | 437 | 430 | 463 | 466 | 481 | 489 | 489 | 455 | 474 | 459 | 402 | 479 | 406 | 437 | 485 | 447 | 474 | 468 |

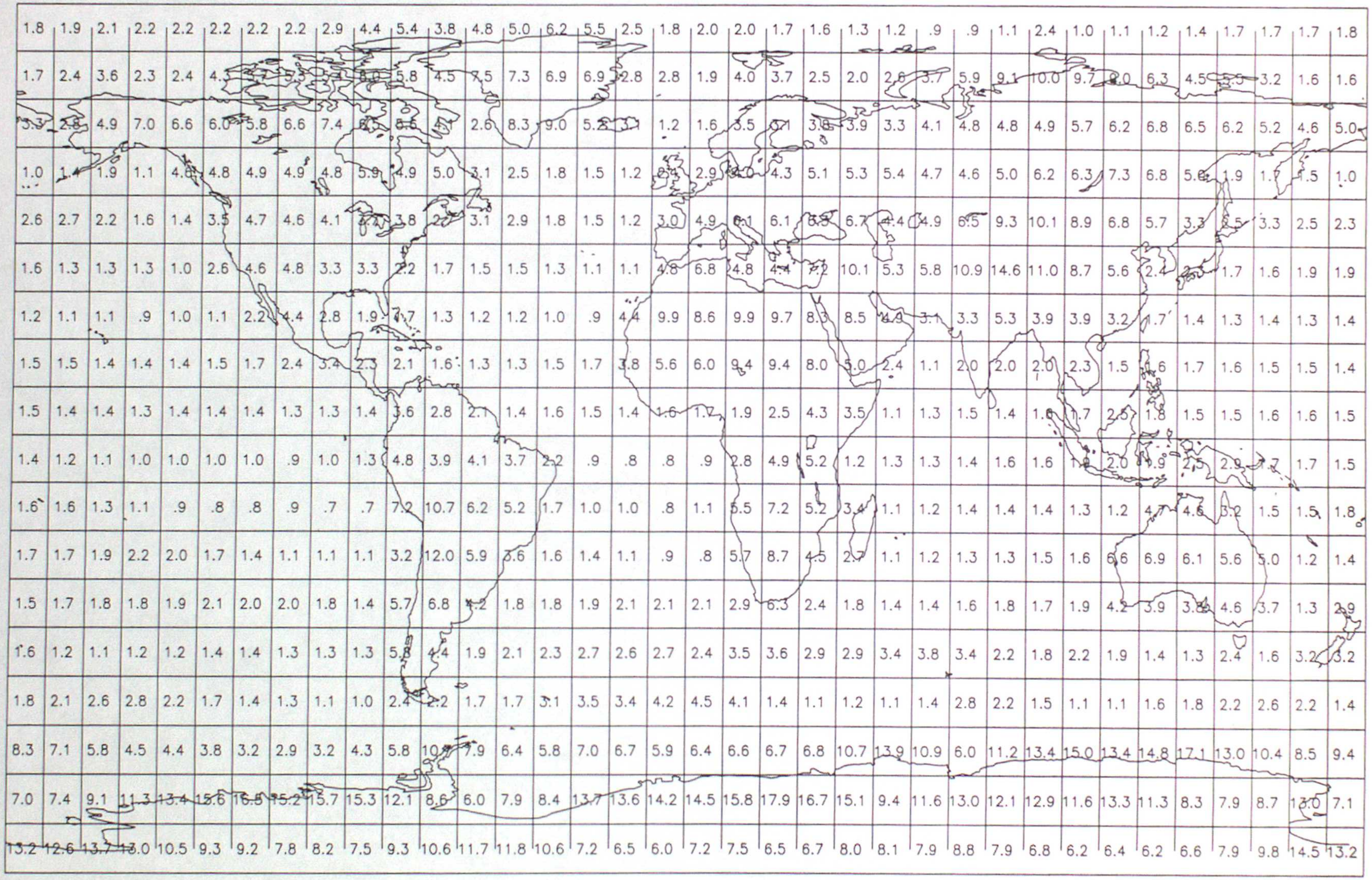
ATOVS : MEAN O−B BRIGHTNESS TEMPERATURE DIFFERENCES (DEG C) FIGURE 26
AUGUST 2000 : HIRS8 channel (Surface)
NOAA−15, USING ALL OBSERVATIONS



| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| .2 | .3 | .5 | .7 | 1.0 | 1.3 | 1.3 | 1.3 | 1.4 | 2.0 | 4.1 | 1.0 | 1.8 | 3.4 | 4.2 | 1.7 | .4 | −.4 | −.1 | −.3 | −.2 | −.2 | −.5 | −.6 | −.6 | −.7 | −.8 | −1.5 | −.9 | −.7 | −.5 | −.3 | .0 | .3 | .1 | .1 |
| −.6 | −1.0 | −1.2 | −.5 | −.4 | −1.9 | −3.6 | −2.7 | −3.2 | −4.8 | −4.5 | −2.6 | 2.1 | 11.5 | 12.6 | 3.9 | −3.4 | −5.6 | −7.5 | −6.6 | −6.3 | −6.0 | −6.0 | −5.5 | −5.4 | −7.0 | −9.3 | −12.3 | −14.8 | −9.2 | −6.0 | −3.9 | −4.2 | −1.9 | −.6 | −.4 |
| −7.8 | −9.7 | −10.5 | −8.4 | −9.4 | −10.3 | −11.4 | −11.9 | −12.7 | −9.5 | −8.1 | −9.4 | −5.9 | 4.0 | −3.5 | −8.2 | −9.8 | −10.9 | −11.9 | −12.7 | −13.5 | −14.4 | −12.4 | −11.4 | −13.2 | −14.9 | −15.7 | −14.4 | −16.8 | −18.1 | −16.5 | −12.8 | −9.8 | −10.3 | −10.4 | −9.6 |
| −10.9 | −11.4 | −12.9 | −13.7 | −11.7 | −11.0 | −14.3 | −16.3 | −15.1 | −11.8 | −14.3 | −14.4 | −11.6 | −11.6 | −12.7 | −14.4 | −15.3 | −15.0 | −16.3 | −18.5 | −19.9 | −19.4 | −18.8 | −17.4 | −17.4 | −18.3 | −17.1 | −17.4 | −19.4 | −20.3 | −18.4 | −15.2 | −14.0 | −11.9 | −11.5 | −10.6 |
| −15.2 | −16.5 | −16.9 | −16.4 | −16.6 | −16.4 | −18.8 | −23.3 | −22.4 | −19.9 | −19.5 | −18.7 | −18.7 | −18.5 | −19.3 | −19.0 | −18.9 | −19.0 | −20.5 | −23.7 | −25.7 | −24.1 | −21.8 | −25.0 | −25.1 | −20.1 | −21.6 | −21.2 | −24.3 | −25.0 | −21.8 | −19.6 | −17.4 | −15.5 | −15.3 | −14.5 |
| −22.3 | −22.4 | −21.8 | −21.0 | −20.2 | −18.9 | −23.3 | −24.2 | −28.7 | −24.4 | −23.6 | −23.9 | −24.1 | −23.4 | −23.1 | −22.4 | −22.4 | −24.9 | −27.6 | −28.2 | −28.4 | −27.1 | −27.1 | −24.1 | −24.2 | −14.8 | −17.1 | −14.9 | −24.1 | −26.7 | −23.6 | −23.1 | −23.5 | −23.6 | −22.9 | −22.1 |
| −24.6 | −24.3 | −23.4 | −22.7 | −21.6 | −20.9 | −23.0 | −22.3 | −25.6 | −25.7 | −25.3 | −25.2 | −24.8 | −24.1 | −23.5 | −23.5 | −25.6 | −30.5 | −29.2 | −35.1 | −35.9 | −30.5 | −28.2 | −28.5 | −26.8 | −26.5 | −21.2 | −19.9 | −22.9 | −24.0 | −24.5 | −24.5 | −24.8 | −25.1 | −25.0 | −24.5 |
| −24.0 | −24.2 | −23.9 | −23.4 | −22.7 | −22.5 | −23.2 | −23.6 | −22.6 | −24.1 | −25.7 | −24.9 | −24.7 | −23.8 | −22.9 | −23.4 | −24.9 | −25.9 | −26.6 | −31.6 | −29.3 | −25.4 | −25.1 | −24.5 | −23.5 | −22.8 | −23.6 | −22.5 | −22.8 | −23.7 | −23.7 | −23.8 | −24.1 | −24.3 | −24.3 | −24.6 |
| −24.1 | −24.3 | −24.1 | −23.7 | −23.3 | −22.5 | −22.0 | −21.9 | −21.4 | −21.8 | −20.3 | −22.2 | −23.9 | −24.1 | −23.5 | −22.7 | −21.9 | −21.2 | −21.2 | −19.7 | −19.9 | −18.2 | −22.1 | −23.6 | −24.1 | −23.6 | −23.4 | −23.3 | −23.8 | −23.2 | −23.4 | −23.6 | −23.4 | −23.8 | −23.9 | −24.5 |
| −25.3 | −25.6 | −25.4 | −25.1 | −24.5 | −23.6 | −22.6 | −21.8 | −21.0 | −20.0 | −20.5 | −24.9 | −25.2 | −24.5 | −23.6 | −24.0 | −23.0 | −22.1 | −22.3 | −21.5 | −20.7 | −18.9 | −23.1 | −23.6 | −23.7 | −23.7 | −23.6 | −24.2 | −23.8 | −23.5 | −23.4 | −22.4 | −21.2 | −23.3 | −24.1 | −25.3 |
| −24.3 | −24.2 | −24.8 | −24.9 | −24.5 | −23.8 | −23.0 | −21.9 | −21.2 | −19.8 | −16.0 | −19.0 | −24.7 | −21.5 | −22.9 | −23.0 | −22.2 | −21.4 | −20.9 | −17.8 | −18.4 | −18.9 | −21.7 | −22.4 | −22.4 | −22.2 | −21.9 | −23.2 | −23.5 | −23.9 | −22.2 | −21.2 | −21.2 | −23.0 | −22.8 | −24.0 |
| −20.1 | −20.1 | −20.3 | −20.7 | −21.4 | −21.6 | −21.0 | −20.2 | −19.2 | −18.1 | −16.7 | −9.1 | −17.1 | −18.2 | −20.8 | −20.7 | −20.2 | −19.6 | −19.1 | −13.7 | −10.9 | −20.3 | −20.6 | −20.9 | −20.4 | −20.3 | −19.8 | −19.6 | −20.5 | −16.2 | −10.6 | −10.6 | −12.1 | −19.0 | −20.5 | −20.4 |
| −15.7 | −15.4 | −15.1 | −14.9 | −14.8 | −15.2 | −15.5 | −15.4 | −15.0 | −14.2 | −11.3 | −7.1 | −11.9 | −16.3 | −15.6 | −15.6 | −15.5 | −15.5 | −15.9 | −15.9 | −14.2 | −18.4 | −17.2 | −16.5 | −16.0 | −15.3 | −14.7 | −14.3 | −15.1 | −14.2 | −13.0 | −12.8 | −7.7 | −15.8 | −16.9 | −15.6 |
| −11.8 | −10.9 | −10.2 | −9.9 | −9.5 | −9.4 | −9.6 | −9.7 | −9.6 | −9.8 | −6.1 | −8.1 | −9.5 | −9.8 | −8.7 | −8.3 | −7.6 | −7.2 | −7.3 | −8.5 | −8.9 | −8.2 | −7.7 | −8.5 | −9.3 | −9.4 | −9.7 | −9.3 | −9.0 | −9.8 | −10.2 | −10.7 | −11.0 | −11.8 | −11.6 | −10.0 |
| −6.5 | −5.7 | −4.9 | −4.8 | −5.3 | −5.5 | −5.6 | −6.0 | −6.1 | −6.2 | −5.7 | −5.2 | −4.2 | −2.5 | −.9 | −.4 | −.5 | .5 | .9 | .8 | −1.4 | −2.1 | −2.0 | −2.6 | −2.5 | −1.2 | −2.2 | −2.5 | −2.3 | −2.8 | −3.9 | −4.3 | −4.1 | −5.2 | −6.4 | −6.7 |
| 6.3 | 6.7 | 6.7 | 5.8 | 3.8 | 1.6 | .6 | −.2 | .0 | .6 | 2.2 | 7.[illegible] | 10.0 | 12.7 | 14.0 | 14.2 | 13.6 | 12.7 | 12.6 | 12.3 | 10.9 | 10.7 | 12.7 | 17.1 | 14.2 | 11.5 | 15.0 | 16.2 | 14.7 | 11.4 | 11.4 | 14.4 | 11.2 | 10.7 | 9.3 | 8.6 |
| 15.0 | 15.8 | 15.5 | 17.2 | 19.3 | 21.8 | 22.3 | 21.0 | 26.4 | 26.3 | 24.6 | 27.3 | 19.6 | 20.9 | 21.6 | 28.7 | 32.9 | 41.6 | 44.9 | 46.3 | 45.8 | 50.3 | 58.8 | 56.3 | 45.3 | 45.0 | 53.9 | 61.6 | 58.3 | 58.7 | 57.7 | 52.8 | 50.6 | 46.5 | 27.5 | 17.5 |
| 30.5 | 28.5 | 28.5 | 35.5 | 36.4 | 36.6 | 39.4 | 47.0 | 50.1 | 41.6 | 36.8 | 33.6 | 34.9 | 36.8 | 40.9 | 46.0 | 49.2 | 52.9 | 54.7 | 56.0 | 55.4 | 57.2 | 63.2 | 67.6 | 68.9 | 68.8 | 67.1 | 65.9 | 63.0 | 61.9 | 58.9 | 55.7 | 52.2 | 46.8 | 34.4 | 30.8 |

ATOVS : SD O-B BRIGHTNESS TEMPERATURE DIFFERENCES(DEG C)
AUGUST 2000 : HIRS8 channel (Surface)
NOAA-15, USING ALL OBSERVATIONS

FIGURE 27



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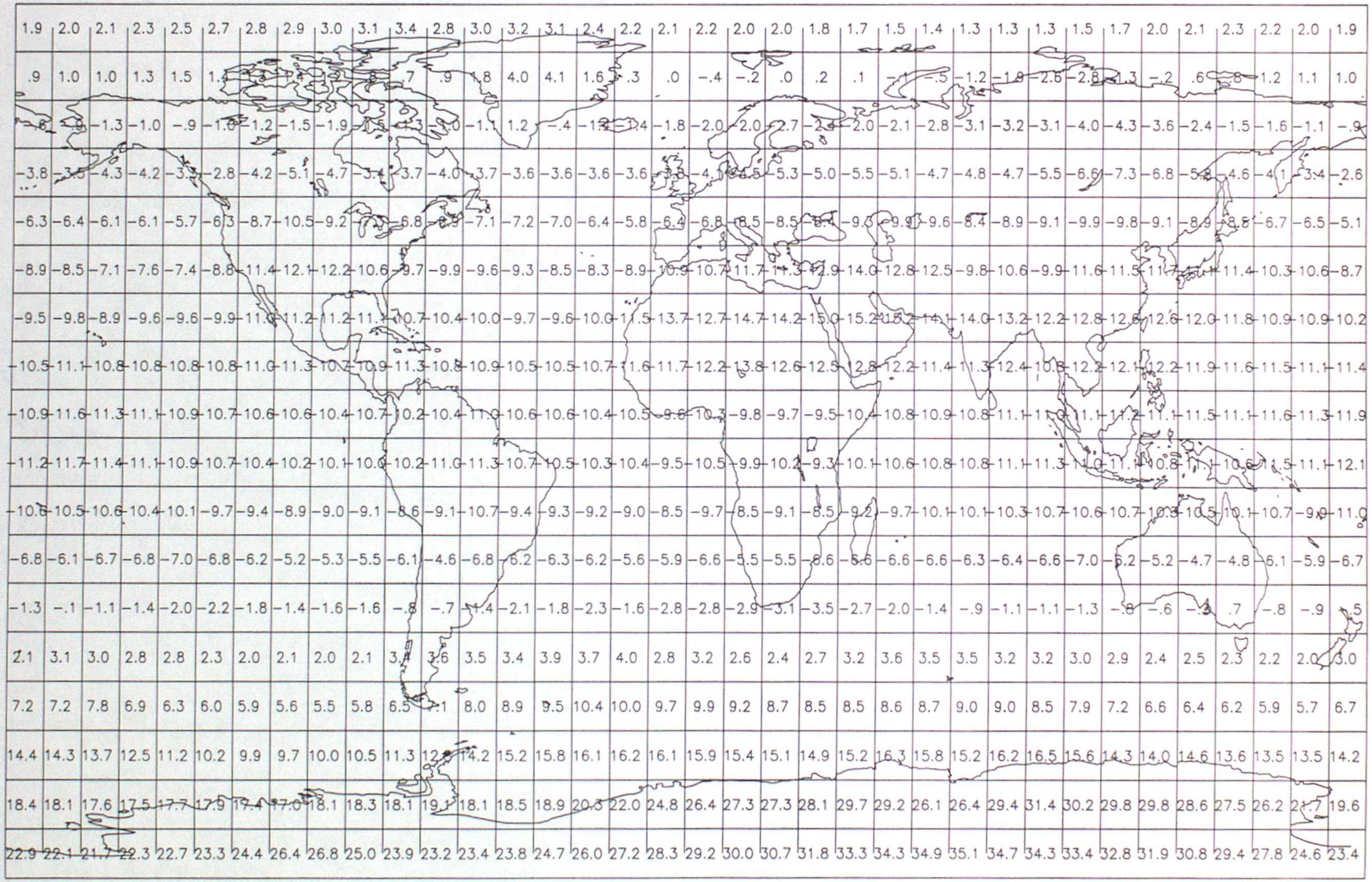
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.8 | 1.9 | 2.1 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.9 | 4.4 | 5.4 | 3.8 | 4.8 | 5.0 | 6.2 | 5.5 | 2.5 | 1.8 | 2.0 | 2.0 | 1.7 | 1.6 | 1.3 | 1.2 | .9 | .9 | 1.1 | 2.4 | 1.0 | 1.1 | 1.2 | 1.4 | 1.7 | 1.7 | 1.7 | 1.8 |
| 1.7 | 2.4 | 3.6 | 2.3 | 2.4 | 4.3 | 3.7 | 5.3 | 5.4 | 6.0 | 5.8 | 4.5 | 7.5 | 7.3 | 6.9 | 6.9 | 2.8 | 2.8 | 1.9 | 4.0 | 3.7 | 2.5 | 2.0 | 2.6 | 3.7 | 5.9 | 9.1 | 10.0 | 9.7 | 8.0 | 6.3 | 4.5 | 5.5 | 3.2 | 1.6 | 1.6 |
| 5.3 | 2.8 | 4.9 | 7.0 | 6.6 | 6.0 | 5.8 | 6.6 | 7.4 | 6.5 | 6.6 | 4.1 | 2.6 | 8.3 | 9.0 | 5.2 | 3.1 | 1.2 | 1.6 | 3.5 | 3.1 | 3.8 | 3.9 | 3.3 | 4.1 | 4.8 | 4.8 | 4.9 | 5.7 | 6.2 | 6.8 | 6.5 | 6.2 | 5.2 | 4.6 | 5.0 |
| 1.0 | 1.4 | 1.9 | 1.1 | 4.8 | 4.8 | 4.9 | 4.9 | 4.8 | 5.9 | 4.9 | 5.0 | 3.1 | 2.5 | 1.8 | 1.5 | 1.2 | 2.4 | 2.9 | 4.0 | 4.3 | 5.1 | 5.3 | 5.4 | 4.7 | 4.6 | 5.0 | 6.2 | 6.3 | 7.3 | 6.8 | 5.6 | 1.9 | 1.7 | 1.5 | 1.0 |
| 2.6 | 2.7 | 2.2 | 1.6 | 1.4 | 3.5 | 4.7 | 4.6 | 4.1 | 3.7 | 3.8 | 2.7 | 3.1 | 2.9 | 1.8 | 1.5 | 1.2 | 3.0 | 4.9 | 6.1 | 6.1 | 6.5 | 6.7 | 4.4 | 4.9 | 6.5 | 9.3 | 10.1 | 8.9 | 6.8 | 5.7 | 3.3 | 3.5 | 3.3 | 2.5 | 2.3 |
| 1.6 | 1.3 | 1.3 | 1.3 | 1.0 | 2.6 | 4.6 | 4.8 | 3.3 | 3.3 | 2.2 | 1.7 | 1.5 | 1.5 | 1.3 | 1.1 | 1.1 | 4.8 | 6.8 | 4.8 | 4.4 | 7.2 | 10.1 | 5.3 | 5.8 | 10.9 | 14.6 | 11.0 | 8.7 | 5.6 | 2.4 | 2.3 | 1.7 | 1.6 | 1.9 | 1.9 |
| 1.2 | 1.1 | 1.1 | .9 | 1.0 | 1.1 | 2.2 | 4.4 | 2.8 | 1.9 | 4.7 | 1.3 | 1.2 | 1.2 | 1.0 | .9 | 4.4 | 9.9 | 8.6 | 9.9 | 9.7 | 8.3 | 8.5 | 4.9 | 3.1 | 3.3 | 5.3 | 3.9 | 3.9 | 3.2 | 1.7 | 1.4 | 1.3 | 1.4 | 1.3 | 1.4 |
| 1.5 | 1.5 | 1.4 | 1.4 | 1.4 | 1.5 | 1.7 | 2.4 | 3.4 | 2.3 | 2.1 | 1.6 | 1.3 | 1.3 | 1.5 | 1.7 | 3.8 | 5.6 | 6.0 | 9.4 | 9.4 | 8.0 | 5.0 | 2.4 | 1.1 | 2.0 | 2.0 | 2.0 | 2.3 | 1.5 | 1.6 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 |
| 1.5 | 1.4 | 1.4 | 1.3 | 1.4 | 1.4 | 1.4 | 1.3 | 1.3 | 1.4 | 3.6 | 2.8 | 2.1 | 1.4 | 1.6 | 1.5 | 1.4 | 1.6 | 1.7 | 1.9 | 2.5 | 4.3 | 3.5 | 1.1 | 1.3 | 1.5 | 1.4 | 1.6 | 1.7 | 2.5 | 1.8 | 1.5 | 1.5 | 1.6 | 1.6 | 1.5 |
| 1.4 | 1.2 | 1.1 | 1.0 | 1.0 | 1.0 | 1.0 | .9 | 1.0 | 1.3 | 4.8 | 3.9 | 4.1 | 3.7 | 2.2 | .9 | .8 | .8 | .9 | 2.8 | 4.9 | 5.2 | 1.2 | 1.3 | 1.3 | 1.4 | 1.6 | 1.6 | 1.8 | 2.0 | 1.9 | 2.5 | 2.9 | 1.7 | 1.7 | 1.5 |
| 1.6 | 1.6 | 1.3 | 1.1 | .9 | .8 | .8 | .9 | .7 | .7 | 7.2 | 10.7 | 6.2 | 5.2 | 1.7 | 1.0 | 1.0 | .8 | 1.1 | 5.5 | 7.2 | 5.2 | 3.4 | 1.1 | 1.2 | 1.4 | 1.4 | 1.4 | 1.3 | 1.2 | 4.7 | 4.6 | 3.2 | 1.5 | 1.5 | 1.8 |
| 1.7 | 1.7 | 1.9 | 2.2 | 2.0 | 1.7 | 1.4 | 1.1 | 1.1 | 1.1 | 3.2 | 12.0 | 5.9 | 3.6 | 1.6 | 1.4 | 1.1 | .9 | .8 | 5.7 | 8.7 | 4.5 | 2.7 | 1.1 | 1.2 | 1.3 | 1.3 | 1.5 | 1.6 | 6.6 | 6.9 | 6.1 | 5.6 | 5.0 | 1.2 | 1.4 |
| 1.5 | 1.7 | 1.8 | 1.8 | 1.9 | 2.1 | 2.0 | 2.0 | 1.8 | 1.4 | 5.7 | 6.8 | 4.2 | 1.8 | 1.8 | 1.9 | 2.1 | 2.1 | 2.1 | 2.9 | 6.3 | 2.4 | 1.8 | 1.4 | 1.4 | 1.6 | 1.8 | 1.7 | 1.9 | 4.2 | 3.9 | 3.8 | 4.6 | 3.7 | 1.3 | 2.9 |
| 1.6 | 1.2 | 1.1 | 1.2 | 1.2 | 1.4 | 1.4 | 1.3 | 1.3 | 1.3 | 5.8 | 4.4 | 1.9 | 2.1 | 2.3 | 2.7 | 2.6 | 2.7 | 2.4 | 3.5 | 3.6 | 2.9 | 2.9 | 3.4 | 3.8 | 3.4 | 2.2 | 1.8 | 2.2 | 1.9 | 1.4 | 1.3 | 2.4 | 1.6 | 3.2 | 3.2 |
| 1.8 | 2.1 | 2.6 | 2.8 | 2.2 | 1.7 | 1.4 | 1.3 | 1.1 | 1.0 | 2.4 | 2.2 | 1.7 | 1.7 | 3.1 | 3.5 | 3.4 | 4.2 | 4.5 | 4.1 | 1.4 | 1.1 | 1.2 | 1.1 | 1.4 | 2.8 | 2.2 | 1.5 | 1.1 | 1.1 | 1.6 | 1.8 | 2.2 | 2.6 | 2.2 | 1.4 |
| 8.3 | 7.1 | 5.8 | 4.5 | 4.4 | 3.8 | 3.2 | 2.9 | 3.2 | 4.3 | 5.8 | 10.9 | 7.9 | 6.4 | 5.8 | 7.0 | 6.7 | 5.9 | 6.4 | 6.6 | 6.7 | 6.8 | 10.7 | 13.9 | 10.9 | 6.0 | 11.2 | 13.4 | 15.0 | 13.4 | 14.8 | 17.1 | 13.0 | 10.4 | 8.5 | 9.4 |
| 7.0 | 7.4 | 9.1 | 11.3 | 13.4 | 15.6 | 16.5 | 15.2 | 15.7 | 15.3 | 12.1 | 8.6 | 6.0 | 7.9 | 8.4 | 13.7 | 13.6 | 14.2 | 14.5 | 15.8 | 17.9 | 16.7 | 15.1 | 9.4 | 11.6 | 13.0 | 12.1 | 12.9 | 11.6 | 13.3 | 11.3 | 8.3 | 7.9 | 8.7 | 13.0 | 7.1 |
| 13.2 | 12.6 | 13.7 | 13.0 | 10.5 | 9.3 | 9.2 | 7.8 | 8.2 | 7.5 | 9.3 | 10.6 | 11.7 | 11.8 | 10.6 | 7.2 | 6.5 | 6.0 | 7.2 | 7.5 | 6.5 | 6.7 | 8.0 | 8.1 | 7.9 | 8.8 | 7.9 | 6.8 | 6.2 | 6.4 | 6.2 | 6.6 | 7.9 | 9.8 | 14.5 | 13.2 |

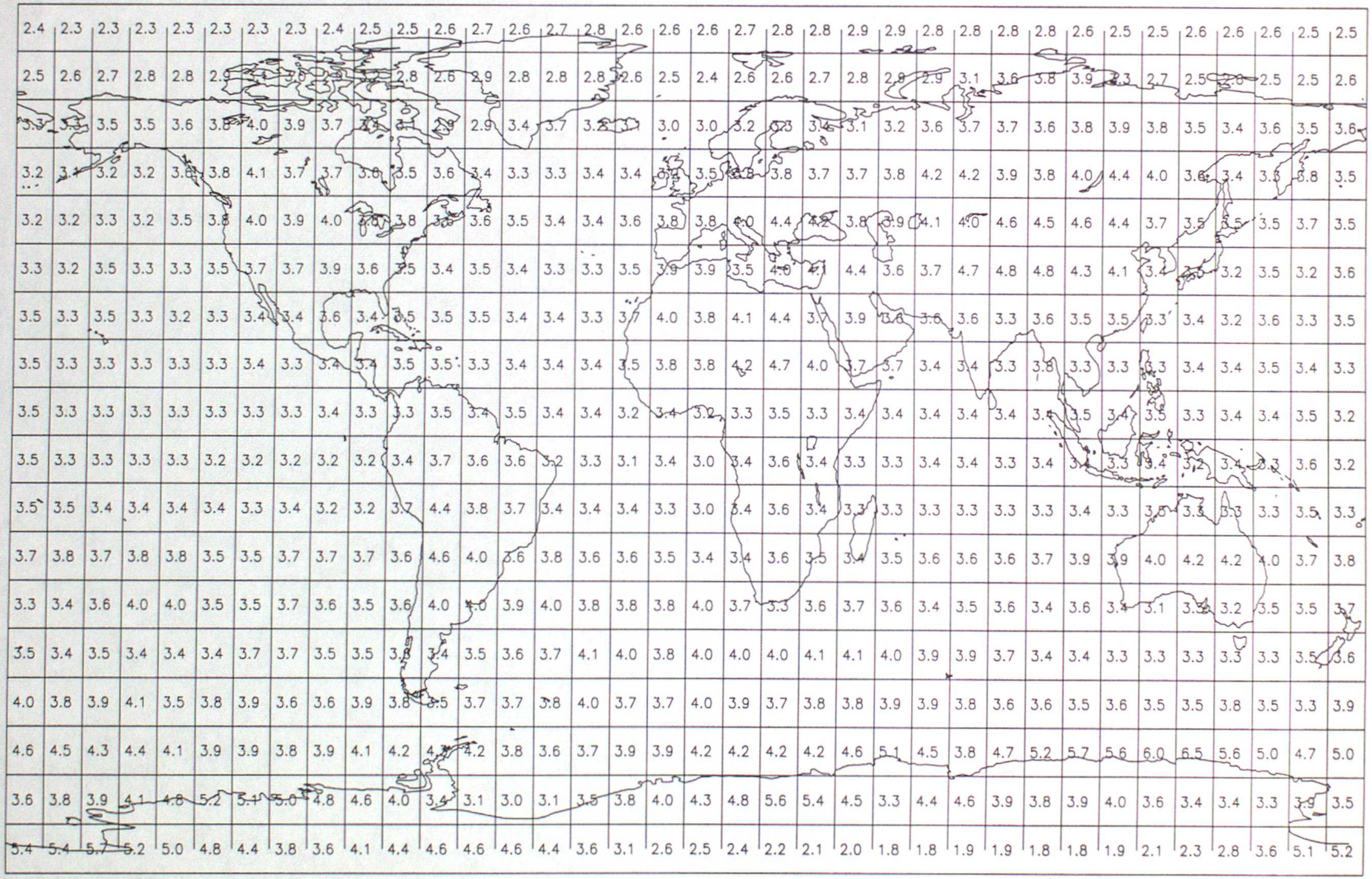
ATOVS : MEAN O–B BRIGHTNESS TEMPERATURE DIFFERENCES (DEG C) FIGURE 28
AUGUST 2000 : HIRS15 Channel (700 hPa)
NOAA–15, USING ALL OBSERVATIONS



| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.9 | 2.0 | 2.1 | 2.3 | 2.5 | 2.7 | 2.8 | 2.9 | 3.0 | 3.1 | 3.4 | 2.8 | 3.0 | 3.2 | 3.1 | 2.4 | 2.2 | 2.1 | 2.2 | 2.0 | 2.0 | 1.8 | 1.7 | 1.5 | 1.4 | 1.3 | 1.3 | 1.3 | 1.5 | 1.7 | 2.0 | 2.1 | 2.3 | 2.2 | 2.0 | 1.9 |
| .9 | 1.0 | 1.0 | 1.3 | 1.5 | 1.4 | 1.3 | 1.4 | 1.2 | .8 | .7 | .9 | 1.8 | 4.0 | 4.1 | 1.6 | .3 | .0 | −.4 | −.2 | .0 | .2 | .1 | −.1 | −.5 | −1.2 | −1.8 | −2.6 | −2.8 | −1.3 | −.2 | .6 | .8 | 1.2 | 1.1 | 1.0 |
| −.6 | −.9 | −1.3 | −1.0 | −.9 | −1.0 | −1.2 | −1.5 | −1.9 | −1.5 | −1.3 | −1.0 | −1.1 | 1.2 | −.4 | −1.2 | −1.4 | −1.8 | −2.0 | −2.0 | −2.7 | −2.4 | −2.0 | −2.1 | −2.8 | −3.1 | −3.2 | −3.1 | −4.0 | −4.3 | −3.6 | −2.4 | −1.5 | −1.6 | −1.1 | −.9 |
| −3.8 | −3.5 | −4.3 | −4.2 | −3.3 | −2.8 | −4.2 | −5.1 | −4.7 | −3.4 | −3.7 | −4.0 | −3.7 | −3.6 | −3.6 | −3.6 | −3.6 | −3.8 | −4.1 | −4.5 | −5.3 | −5.0 | −5.5 | −5.1 | −4.7 | −4.8 | −4.7 | −5.5 | −6.6 | −7.3 | −6.8 | −5.8 | −4.6 | −4.1 | −3.4 | −2.6 |
| −6.3 | −6.4 | −6.1 | −6.1 | −5.7 | −6.3 | −8.7 | −10.5 | −9.2 | −7.5 | −6.8 | −8.5 | −7.1 | −7.2 | −7.0 | −6.4 | −5.8 | −6.4 | −6.8 | −8.5 | −8.5 | −8.4 | −9.3 | −9.9 | −9.6 | −8.4 | −8.9 | −9.1 | −9.9 | −9.8 | −9.1 | −8.9 | −8.5 | −6.7 | −6.5 | −5.1 |
| −8.9 | −8.5 | −7.1 | −7.6 | −7.4 | −8.8 | −11.4 | −12.1 | −12.2 | −10.6 | −9.7 | −9.9 | −9.6 | −9.3 | −8.5 | −8.3 | −8.9 | −10.9 | −10.7 | −11.7 | −14.3 | −12.9 | −14.0 | −12.8 | −12.5 | −9.8 | −10.6 | −9.9 | −11.6 | −11.5 | −11.7 | −11.1 | −11.4 | −10.3 | −10.6 | −8.7 |
| −9.5 | −9.8 | −8.9 | −9.6 | −9.6 | −9.9 | −11.0 | −11.2 | −11.2 | −11.1 | −10.7 | −10.4 | −10.0 | −9.7 | −9.6 | −10.0 | −11.5 | −13.7 | −12.7 | −14.7 | −14.2 | −15.0 | −15.2 | −15.2 | −14.1 | −14.0 | −13.2 | −12.2 | −12.8 | −12.6 | −12.6 | −12.0 | −11.8 | −10.9 | −10.9 | −10.2 |
| −10.5 | −11.1 | −10.8 | −10.8 | −10.8 | −10.8 | −11.0 | −11.3 | −10.7 | −10.9 | −11.3 | −10.8 | −10.9 | −10.5 | −10.5 | −10.7 | −11.6 | −11.7 | −12.2 | −13.8 | −12.6 | −12.5 | −12.8 | −12.2 | −11.4 | −11.3 | −12.4 | −10.8 | −12.2 | −12.1 | −12.2 | −11.9 | −11.6 | −11.5 | −11.1 | −11.4 |
| −10.9 | −11.6 | −11.3 | −11.1 | −10.9 | −10.7 | −10.6 | −10.6 | −10.4 | −10.7 | −10.2 | −10.4 | −11.0 | −10.6 | −10.6 | −10.4 | −10.5 | −9.6 | −10.3 | −9.8 | −9.7 | −9.5 | −10.4 | −10.8 | −10.9 | −10.8 | −11.1 | −11.0 | −11.1 | −11.2 | −11.1 | −11.5 | −11.1 | −11.6 | −11.3 | −11.9 |
| −11.2 | −11.7 | −11.4 | −11.1 | −10.9 | −10.7 | −10.4 | −10.2 | −10.1 | −10.0 | −10.2 | −11.0 | −11.3 | −10.7 | −10.5 | −10.3 | −10.4 | −9.5 | −10.5 | −9.9 | −10.2 | −9.3 | −10.1 | −10.6 | −10.8 | −10.8 | −11.1 | −11.3 | −11.0 | −11.1 | −10.8 | −11.1 | −10.6 | −11.5 | −11.1 | −12.1 |
| −10.6 | −10.5 | −10.6 | −10.4 | −10.1 | −9.7 | −9.4 | −8.9 | −9.0 | −9.1 | −8.6 | −9.1 | −10.7 | −9.4 | −9.3 | −9.2 | −9.0 | −8.5 | −9.7 | −8.5 | −9.1 | −8.5 | −9.2 | −9.7 | −10.1 | −10.1 | −10.3 | −10.7 | −10.6 | −10.7 | −10.3 | −10.5 | −10.1 | −10.7 | −9.9 | −11.0 |
| −6.8 | −6.1 | −6.7 | −6.8 | −7.0 | −6.8 | −6.2 | −5.2 | −5.3 | −5.5 | −6.1 | −4.6 | −6.8 | −6.2 | −6.3 | −6.2 | −5.6 | −5.9 | −6.6 | −5.5 | −5.5 | −6.6 | −6.6 | −6.6 | −6.6 | −6.3 | −6.4 | −6.6 | −7.0 | −6.2 | −5.2 | −4.7 | −4.8 | −6.1 | −5.9 | −6.7 |
| −1.3 | −.1 | −1.1 | −1.4 | −2.0 | −2.2 | −1.8 | −1.4 | −1.6 | −1.6 | −.8 | −.7 | −1.4 | −2.1 | −1.8 | −2.3 | −1.6 | −2.8 | −2.8 | −2.9 | −3.1 | −3.5 | −2.7 | −2.0 | −1.4 | −.9 | −1.1 | −1.1 | −1.3 | −.8 | −.6 | −.3 | .7 | −.8 | −.9 | −.5 |
| 2.1 | 3.1 | 3.0 | 2.8 | 2.8 | 2.3 | 2.0 | 2.1 | 2.0 | 2.1 | 3.4 | 3.6 | 3.5 | 3.4 | 3.9 | 3.7 | 4.0 | 2.8 | 3.2 | 2.6 | 2.4 | 2.7 | 3.2 | 3.6 | 3.5 | 3.5 | 3.2 | 3.2 | 3.0 | 2.9 | 2.4 | 2.5 | 2.3 | 2.2 | 2.0 | 3.0 |
| 7.2 | 7.2 | 7.8 | 6.9 | 6.3 | 6.0 | 5.9 | 5.6 | 5.5 | 5.8 | 6.5 | 7.1 | 8.0 | 8.9 | 9.5 | 10.4 | 10.0 | 9.7 | 9.9 | 9.2 | 8.7 | 8.5 | 8.5 | 8.6 | 8.7 | 9.0 | 9.0 | 8.5 | 7.9 | 7.2 | 6.6 | 6.4 | 6.2 | 5.9 | 5.7 | 6.7 |
| 14.4 | 14.3 | 13.7 | 12.5 | 11.2 | 10.2 | 9.9 | 9.7 | 10.0 | 10.5 | 11.3 | [illegible] | 14.2 | 15.2 | 15.8 | 16.1 | 16.2 | 16.1 | 15.9 | 15.4 | 15.1 | 14.9 | 15.2 | 16.3 | 15.8 | 15.2 | 16.2 | 16.5 | 15.6 | 14.3 | 14.0 | 14.6 | 13.6 | 13.5 | 13.5 | 14.2 |
| 18.4 | 18.1 | 17.6 | 17.5 | 17.7 | 17.9 | 17.4 | 17.0 | 18.1 | 18.3 | 18.1 | 19.1 | 18.1 | 18.5 | 18.9 | 20.3 | 22.0 | 24.8 | 26.4 | 27.3 | 27.3 | 28.1 | 29.7 | 29.2 | 26.1 | 26.4 | 29.4 | 31.4 | 30.2 | 29.8 | 29.8 | 28.6 | 27.5 | 26.2 | 21.7 | 19.6 |
| 22.9 | 22.1 | 21.7 | 22.3 | 22.7 | 23.3 | 24.4 | 26.4 | 26.8 | 25.0 | 23.9 | 23.2 | 23.4 | 23.8 | 24.7 | 26.0 | 27.2 | 28.3 | 29.2 | 30.0 | 30.7 | 31.8 | 33.3 | 34.3 | 34.9 | 35.1 | 34.7 | 34.3 | 33.4 | 32.8 | 31.9 | 30.8 | 29.4 | 27.8 | 24.6 | 23.4 |

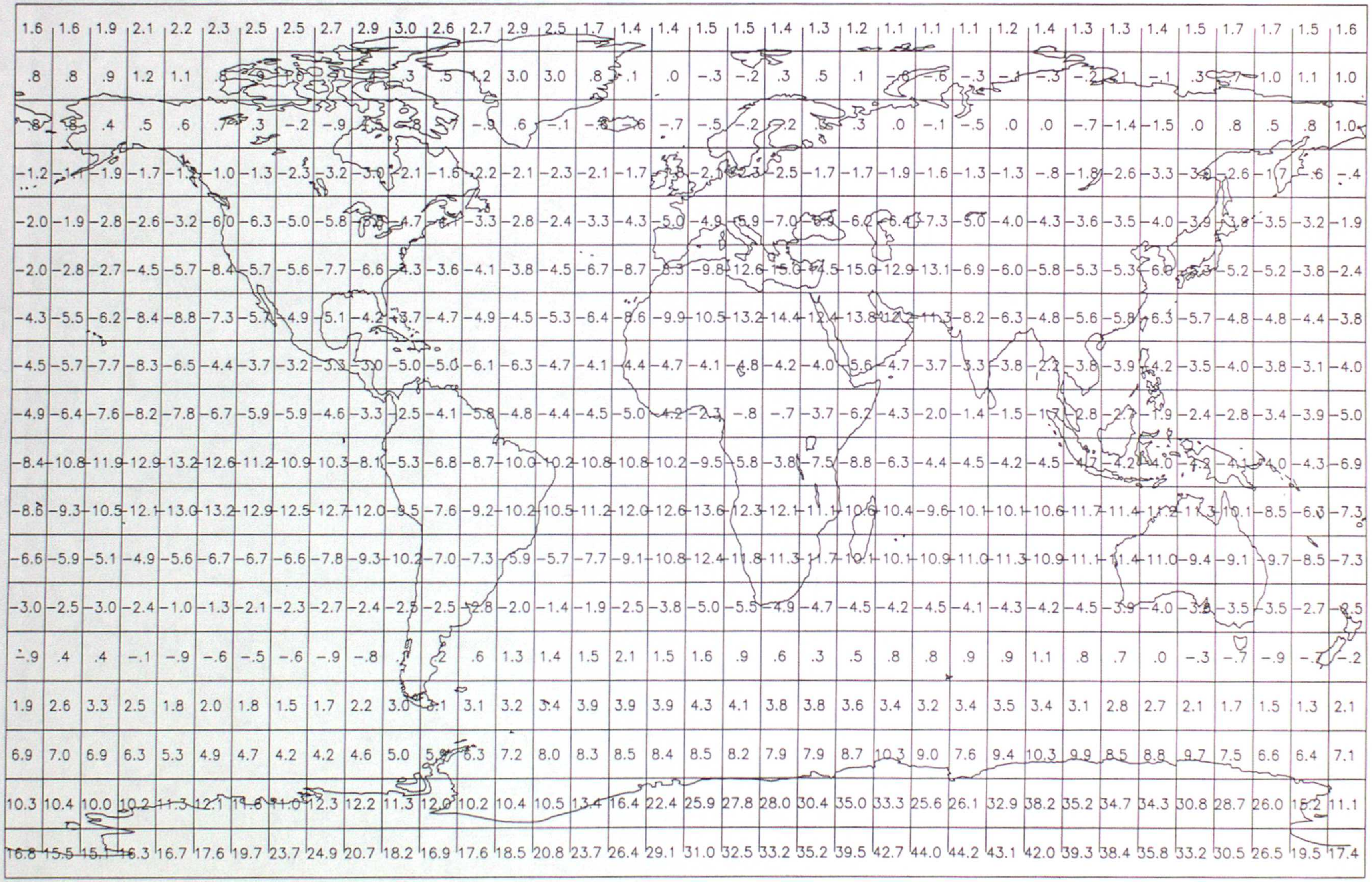
ATOVS : SD O-B BRIGHTNESS TEMPERATURE DIFFERENCES(DEG C)
AUGUST 2000 : HIRS15 channel (700 hPa)
NOAA-15, USING ALL OBSERVATIONS

FIGURE 29



| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.4 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.4 | 2.5 | 2.5 | 2.6 | 2.7 | 2.6 | 2.7 | 2.8 | 2.6 | 2.6 | 2.6 | 2.7 | 2.8 | 2.8 | 2.9 | 2.9 | 2.8 | 2.8 | 2.8 | 2.8 | 2.6 | 2.5 | 2.5 | 2.6 | 2.6 | 2.6 | 2.5 | 2.5 |
| 2.5 | 2.6 | 2.7 | 2.8 | 2.8 | 2.9 | 3.4 | 3.0 | [illegible] | [illegible] | 2.8 | 2.6 | 2.9 | 2.8 | 2.8 | 2.8 | 2.6 | 2.5 | 2.4 | 2.6 | 2.6 | 2.7 | 2.8 | 2.8 | 2.9 | 3.1 | 3.6 | 3.8 | 3.9 | 2.3 | 2.7 | 2.5 | 2.6 | 2.5 | 2.5 | 2.6 |
| 3.3 | 3.3 | 3.5 | 3.5 | 3.6 | 3.8 | 4.0 | 3.9 | 3.7 | 3.4 | 3.1 | 2.9 | 2.9 | 3.4 | 3.7 | 3.2 | 3.1 | 3.0 | 3.0 | 3.2 | 3.3 | 3.4 | 3.1 | 3.2 | 3.6 | 3.7 | 3.7 | 3.6 | 3.8 | 3.9 | 3.8 | 3.5 | 3.4 | 3.6 | 3.5 | 3.6 |
| 3.2 | 3.1 | 3.2 | 3.2 | 3.6 | 3.8 | 4.1 | 3.7 | 3.7 | 3.6 | 3.5 | 3.6 | 3.4 | 3.3 | 3.3 | 3.4 | 3.4 | 3.4 | 3.5 | 3.8 | 3.8 | 3.7 | 3.7 | 3.8 | 4.2 | 4.2 | 3.9 | 3.8 | 4.0 | 4.4 | 4.0 | 3.6 | 3.4 | 3.3 | 3.8 | 3.5 |
| 3.2 | 3.2 | 3.3 | 3.2 | 3.5 | 3.8 | 4.0 | 3.9 | 4.0 | 3.6 | 3.8 | 3.6 | 3.6 | 3.5 | 3.4 | 3.4 | 3.6 | 3.8 | 3.8 | 4.0 | 4.4 | 4.2 | 3.8 | 3.9 | 4.1 | 4.0 | 4.6 | 4.5 | 4.6 | 4.4 | 3.7 | 3.5 | 3.5 | 3.5 | 3.7 | 3.5 |
| 3.3 | 3.2 | 3.5 | 3.3 | 3.3 | 3.5 | 3.7 | 3.7 | 3.9 | 3.6 | 3.5 | 3.4 | 3.5 | 3.4 | 3.3 | 3.3 | 3.5 | 3.9 | 3.9 | 3.5 | 4.0 | 4.1 | 4.4 | 3.6 | 3.7 | 4.7 | 4.8 | 4.8 | 4.3 | 4.1 | 3.4 | 3.5 | 3.2 | 3.5 | 3.2 | 3.6 |
| 3.5 | 3.3 | 3.5 | 3.3 | 3.2 | 3.3 | 3.4 | 3.4 | 3.6 | 3.4 | 3.5 | 3.5 | 3.5 | 3.4 | 3.4 | 3.3 | 3.7 | 4.0 | 3.8 | 4.1 | 4.4 | 3.7 | 3.9 | 3.6 | 3.6 | 3.6 | 3.3 | 3.6 | 3.5 | 3.5 | 3.3 | 3.4 | 3.2 | 3.6 | 3.3 | 3.5 |
| 3.5 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.4 | 3.3 | 3.4 | 3.4 | 3.5 | 3.5 | 3.3 | 3.4 | 3.4 | 3.4 | 3.5 | 3.8 | 3.8 | 4.2 | 4.7 | 4.0 | 3.7 | 3.7 | 3.4 | 3.4 | 3.3 | 3.8 | 3.3 | 3.3 | 3.3 | 3.4 | 3.4 | 3.5 | 3.4 | 3.3 |
| 3.5 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.4 | 3.3 | 3.3 | 3.5 | 3.4 | 3.5 | 3.4 | 3.4 | 3.2 | 3.4 | 3.2 | 3.3 | 3.5 | 3.3 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.5 | 3.4 | 3.5 | 3.3 | 3.4 | 3.4 | 3.5 | 3.2 |
| 3.5 | 3.3 | 3.3 | 3.3 | 3.3 | 3.2 | 3.2 | 3.2 | 3.2 | 3.2 | 3.4 | 3.7 | 3.6 | 3.6 | 3.2 | 3.3 | 3.1 | 3.4 | 3.0 | 3.4 | 3.6 | 3.4 | 3.3 | 3.3 | 3.4 | 3.4 | 3.3 | 3.4 | 3.4 | 3.3 | 3.4 | 3.2 | 3.4 | 3.3 | 3.6 | 3.2 |
| 3.5 | 3.5 | 3.4 | 3.4 | 3.4 | 3.4 | 3.3 | 3.4 | 3.2 | 3.2 | 3.7 | 4.4 | 3.8 | 3.7 | 3.4 | 3.4 | 3.4 | 3.3 | 3.0 | 3.4 | 3.6 | 3.4 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.4 | 3.3 | 3.5 | 3.3 | 3.3 | 3.3 | 3.5 | 3.3 |
| 3.7 | 3.8 | 3.7 | 3.8 | 3.8 | 3.5 | 3.5 | 3.7 | 3.7 | 3.7 | 3.6 | 4.6 | 4.0 | 3.6 | 3.8 | 3.6 | 3.6 | 3.5 | 3.4 | 3.4 | 3.6 | 3.5 | 3.4 | 3.5 | 3.6 | 3.6 | 3.6 | 3.7 | 3.9 | 3.9 | 4.0 | 4.2 | 4.2 | 4.0 | 3.7 | 3.8 |
| 3.3 | 3.4 | 3.6 | 4.0 | 4.0 | 3.5 | 3.5 | 3.7 | 3.6 | 3.5 | 3.6 | 4.0 | 4.0 | 3.9 | 4.0 | 3.8 | 3.8 | 3.8 | 4.0 | 3.7 | 3.3 | 3.6 | 3.7 | 3.6 | 3.4 | 3.5 | 3.6 | 3.4 | 3.6 | 3.4 | 3.1 | 3.3 | 3.2 | 3.5 | 3.5 | 3.7 |
| 3.5 | 3.4 | 3.5 | 3.4 | 3.4 | 3.4 | 3.7 | 3.7 | 3.5 | 3.5 | 3.8 | 3.4 | 3.5 | 3.6 | 3.7 | 4.1 | 4.0 | 3.8 | 4.0 | 4.0 | 4.0 | 4.1 | 4.1 | 4.0 | 3.9 | 3.9 | 3.7 | 3.4 | 3.4 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.5 | 3.6 |
| 4.0 | 3.8 | 3.9 | 4.1 | 3.5 | 3.8 | 3.9 | 3.6 | 3.6 | 3.9 | 3.8 | 3.5 | 3.7 | 3.7 | 3.8 | 4.0 | 3.7 | 3.7 | 4.0 | 3.9 | 3.7 | 3.8 | 3.8 | 3.9 | 3.9 | 3.8 | 3.6 | 3.6 | 3.5 | 3.6 | 3.5 | 3.5 | 3.8 | 3.5 | 3.3 | 3.9 |
| 4.6 | 4.5 | 4.3 | 4.4 | 4.1 | 3.9 | 3.9 | 3.8 | 3.9 | 4.1 | 4.2 | 4.3 | 4.2 | 3.8 | 3.6 | 3.7 | 3.9 | 3.9 | 4.2 | 4.2 | 4.2 | 4.2 | 4.6 | 5.1 | 4.5 | 3.8 | 4.7 | 5.2 | 5.7 | 5.6 | 6.0 | 6.5 | 5.6 | 5.0 | 4.7 | 5.0 |
| 3.6 | 3.8 | 3.9 | 4.1 | 4.8 | 5.2 | 5.1 | 5.0 | 4.8 | 4.6 | 4.0 | 3.4 | 3.1 | 3.0 | 3.1 | 3.5 | 3.8 | 4.0 | 4.3 | 4.8 | 5.6 | 5.4 | 4.5 | 3.3 | 4.4 | 4.6 | 3.9 | 3.8 | 3.9 | 4.0 | 3.6 | 3.4 | 3.4 | 3.3 | 3.9 | 3.5 |
| 5.4 | 5.4 | 5.7 | 5.2 | 5.0 | 4.8 | 4.4 | 3.8 | 3.6 | 4.1 | 4.4 | 4.6 | 4.6 | 4.6 | 4.4 | 3.6 | 3.1 | 2.6 | 2.5 | 2.4 | 2.2 | 2.1 | 2.0 | 1.8 | 1.8 | 1.9 | 1.9 | 1.8 | 1.8 | 1.9 | 2.1 | 2.3 | 2.8 | 3.6 | 5.1 | 5.2 |

ATOVS : MEAN O−B BRIGHTNESS TEMPERATURE DIFFERENCES (DEG C) FIGURE 30
AUGUST 2000 : HIRS11 Channel (500−700 hPa)
NOAA−15, USING ALL OBSERVATIONS



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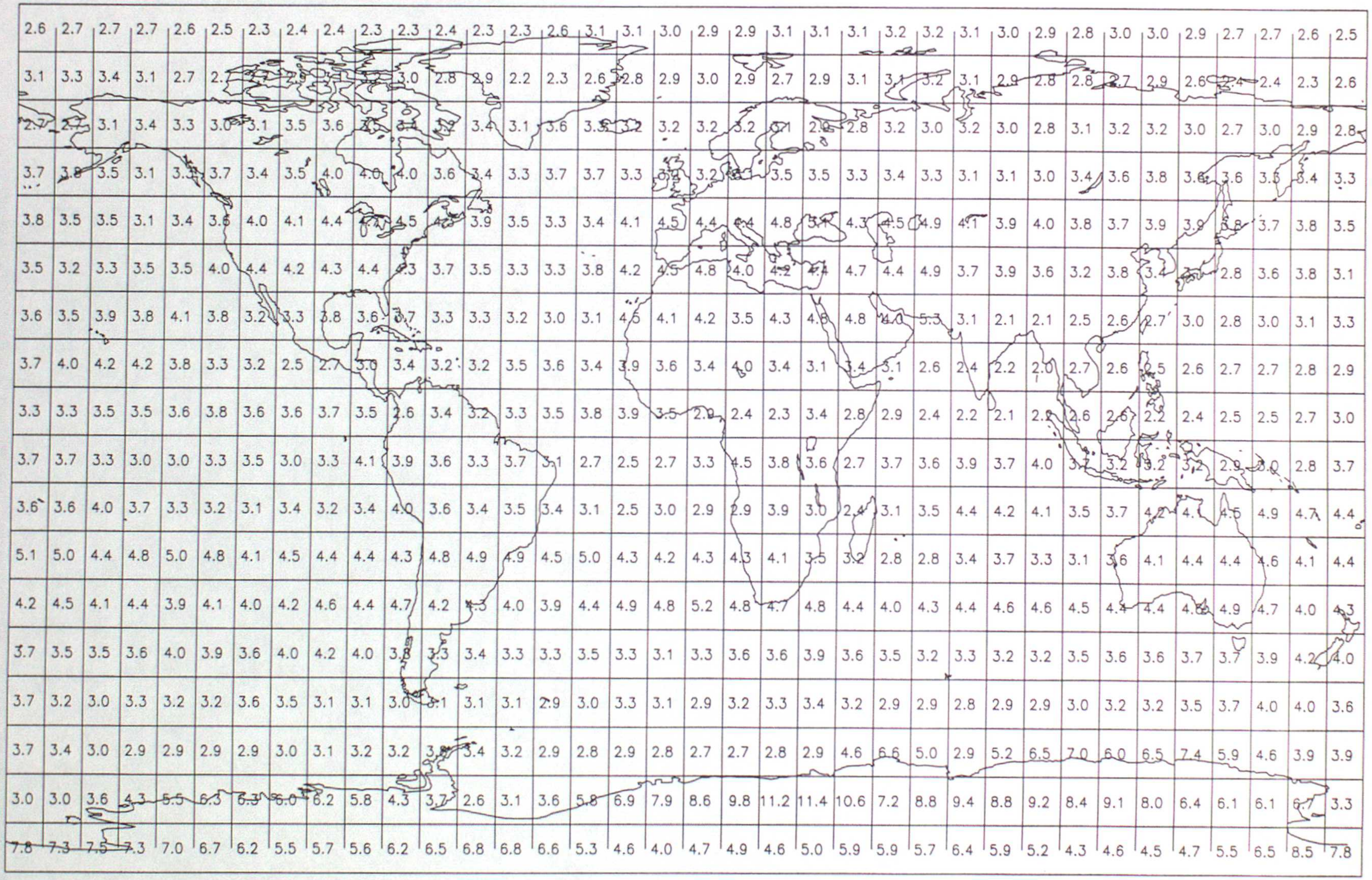
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.6 | 1.6 | 1.9 | 2.1 | 2.2 | 2.3 | 2.5 | 2.5 | 2.7 | 2.9 | 3.0 | 2.6 | 2.7 | 2.9 | 2.5 | 1.7 | 1.4 | 1.4 | 1.5 | 1.5 | 1.4 | 1.3 | 1.2 | 1.1 | 1.1 | 1.1 | 1.2 | 1.4 | 1.3 | 1.3 | 1.4 | 1.5 | 1.7 | 1.7 | 1.5 | 1.6 |
| .8 | .8 | .9 | 1.2 | 1.1 | .8 | .9 | 1.0 | [illegible] | .4 | .3 | .5 | 1.2 | 3.0 | 3.0 | .8 | .1 | .0 | −.3 | −.2 | .3 | .5 | .1 | −.6 | −.6 | −.3 | −.1 | −.3 | −.2 | .1 | −.1 | .3 | .7 | 1.0 | 1.1 | 1.0 |
| .8 | .8 | .4 | .5 | .6 | .7 | .3 | −.2 | −.9 | [illegible] | [illegible] | .7 | −.9 | .6 | −.1 | −.8 | −.6 | −.7 | −.5 | −.2 | .2 | .5 | .3 | .0 | −.1 | −.5 | .0 | .0 | −.7 | −1.4 | −1.5 | .0 | .8 | .5 | .8 | 1.0 |
| −1.2 | −1.1 | −1.9 | −1.7 | −1.2 | −1.0 | −1.3 | −2.3 | −3.2 | −3.0 | −2.1 | −1.6 | −2.2 | −2.1 | −2.3 | −2.1 | −1.7 | −1.8 | −2.1 | −2.3 | −2.5 | −1.7 | −1.7 | −1.9 | −1.6 | −1.3 | −1.3 | −.8 | −1.8 | −2.6 | −3.3 | −3.0 | −2.6 | −1.7 | −.6 | −.4 |
| −2.0 | −1.9 | −2.8 | −2.6 | −3.2 | −6.0 | −6.3 | −5.0 | −5.8 | [illegible] | −4.7 | [illegible] | −3.3 | −2.8 | −2.4 | −3.3 | −4.3 | −5.0 | −4.9 | −5.9 | −7.0 | −6.9 | −6.2 | −6.4 | −7.3 | −5.0 | −4.0 | −4.3 | −3.6 | −3.5 | −4.0 | −3.9 | −3.8 | −3.5 | −3.2 | −1.9 |
| −2.0 | −2.8 | −2.7 | −4.5 | −5.7 | −8.4 | −5.7 | −5.6 | −7.7 | −6.6 | −4.3 | −3.6 | −4.1 | −3.8 | −4.5 | −6.7 | −8.7 | −8.3 | −9.8 | −12.6 | −15.0 | −14.5 | −15.0 | −12.9 | −13.1 | −6.9 | −6.0 | −5.8 | −5.3 | −5.3 | −6.0 | −5.3 | −5.2 | −5.2 | −3.8 | −2.4 |
| −4.3 | −5.5 | −6.2 | −8.4 | −8.8 | −7.3 | −5.7 | −4.9 | −5.1 | −4.2 | −3.7 | −4.7 | −4.9 | −4.5 | −5.3 | −6.4 | −8.6 | −9.9 | −10.5 | −13.2 | −14.4 | −12.4 | −13.8 | −12.2 | −11.3 | −8.2 | −6.3 | −4.8 | −5.6 | −5.8 | −6.3 | −5.7 | −4.8 | −4.8 | −4.4 | −3.8 |
| −4.5 | −5.7 | −7.7 | −8.3 | −6.5 | −4.4 | −3.7 | −3.2 | −3.3 | −3.0 | −5.0 | −5.0 | −6.1 | −6.3 | −4.7 | −4.1 | −4.4 | −4.7 | −4.1 | −4.8 | −4.2 | −4.0 | −5.6 | −4.7 | −3.7 | −3.3 | −3.8 | −2.2 | −3.8 | −3.9 | −4.2 | −3.5 | −4.0 | −3.8 | −3.1 | −4.0 |
| −4.9 | −6.4 | −7.6 | −8.2 | −7.8 | −6.7 | −5.9 | −5.9 | −4.6 | −3.3 | −2.5 | −4.1 | −5.8 | −4.8 | −4.4 | −4.5 | −5.0 | −4.2 | −2.3 | −.8 | −.7 | −3.7 | −6.2 | −4.3 | −2.0 | −1.4 | −1.5 | −1.7 | −2.8 | −2.7 | −1.9 | −2.4 | −2.8 | −3.4 | −3.9 | −5.0 |
| −8.4 | −10.8 | −11.9 | −12.9 | −13.2 | −12.6 | −11.2 | −10.9 | −10.3 | −8.1 | −5.3 | −6.8 | −8.7 | −10.0 | −10.2 | −10.8 | −10.8 | −10.2 | −9.5 | −5.8 | −3.8 | −7.5 | −8.8 | −6.3 | −4.4 | −4.5 | −4.2 | −4.5 | −4.7 | −4.2 | −4.0 | −4.2 | −4.1 | −4.0 | −4.3 | −6.9 |
| −8.6 | −9.3 | −10.5 | −12.1 | −13.0 | −13.2 | −12.9 | −12.5 | −12.7 | −12.0 | −9.5 | −7.6 | −9.2 | −10.2 | −10.5 | −11.2 | −12.0 | −12.6 | −13.6 | −12.3 | −12.1 | −11.1 | −10.6 | −10.4 | −9.6 | −10.1 | −10.1 | −10.6 | −11.7 | −11.4 | −11.2 | −11.3 | −10.1 | −8.5 | −6.3 | −7.3 |
| −6.6 | −5.9 | −5.1 | −4.9 | −5.6 | −6.7 | −6.7 | −6.6 | −7.8 | −9.3 | −10.2 | −7.0 | −7.3 | −5.9 | −5.7 | −7.7 | −9.1 | −10.8 | −12.4 | −11.8 | −11.3 | −11.7 | −10.1 | −10.1 | −10.9 | −11.0 | −11.3 | −10.9 | −11.1 | −11.4 | −11.0 | −9.4 | −9.1 | −9.7 | −8.5 | −7.3 |
| −3.0 | −2.5 | −3.0 | −2.4 | −1.0 | −1.3 | −2.1 | −2.3 | −2.7 | −2.4 | −2.5 | −2.5 | −2.8 | −2.0 | −1.4 | −1.9 | −2.5 | −3.8 | −5.0 | −5.5 | −4.9 | −4.7 | −4.5 | −4.2 | −4.5 | −4.1 | −4.3 | −4.2 | −4.5 | −3.9 | −4.0 | −3.8 | −3.5 | −3.5 | −2.7 | −2.5 |
| −.9 | .4 | .4 | −.1 | −.9 | −.6 | −.5 | −.6 | −.9 | −.8 | .1 | .2 | .6 | 1.3 | 1.4 | 1.5 | 2.1 | 1.5 | 1.6 | .9 | .6 | .3 | .5 | .8 | .8 | .9 | .9 | 1.1 | .8 | .7 | .0 | −.3 | −.7 | −.9 | −.7 | −.2 |
| 1.9 | 2.6 | 3.3 | 2.5 | 1.8 | 2.0 | 1.8 | 1.5 | 1.7 | 2.2 | 3.0 | 3.1 | 3.1 | 3.2 | 3.4 | 3.9 | 3.9 | 3.9 | 4.3 | 4.1 | 3.8 | 3.8 | 3.6 | 3.4 | 3.2 | 3.4 | 3.5 | 3.4 | 3.1 | 2.8 | 2.7 | 2.1 | 1.7 | 1.5 | 1.3 | 2.1 |
| 6.9 | 7.0 | 6.9 | 6.3 | 5.3 | 4.9 | 4.7 | 4.2 | 4.2 | 4.6 | 5.0 | 5.9 | 6.3 | 7.2 | 8.0 | 8.3 | 8.5 | 8.4 | 8.5 | 8.2 | 7.9 | 7.9 | 8.7 | 10.3 | 9.0 | 7.6 | 9.4 | 10.3 | 9.9 | 8.5 | 8.8 | 9.7 | 7.5 | 6.6 | 6.4 | 7.1 |
| 10.3 | 10.4 | 10.0 | 10.2 | 11.3 | 12.1 | 11.6 | 11.0 | 12.3 | 12.2 | 11.3 | 12.0 | 10.2 | 10.4 | 10.5 | 13.4 | 16.4 | 22.4 | 25.9 | 27.8 | 28.0 | 30.4 | 35.0 | 33.3 | 25.6 | 26.1 | 32.9 | 38.2 | 35.2 | 34.7 | 34.3 | 30.8 | 28.7 | 26.0 | 15.2 | 11.1 |
| 16.8 | 15.5 | 15.1 | 16.3 | 16.7 | 17.6 | 19.7 | 23.7 | 24.9 | 20.7 | 18.2 | 16.9 | 17.6 | 18.5 | 20.8 | 23.7 | 26.4 | 29.1 | 31.0 | 32.5 | 33.2 | 35.2 | 39.5 | 42.7 | 44.0 | 44.2 | 43.1 | 42.0 | 39.3 | 38.4 | 35.8 | 33.2 | 30.5 | 26.5 | 19.5 | 17.4 |

ATOVS : SD O-B BRIGHTNESS TEMPERATURE DIFFERENCES(DEG C)
AUGUST 2000 : HIRS11 channel (500-700 hPa)
NOAA-15, USING ALL OBSERVATIONS

FIGURE 31



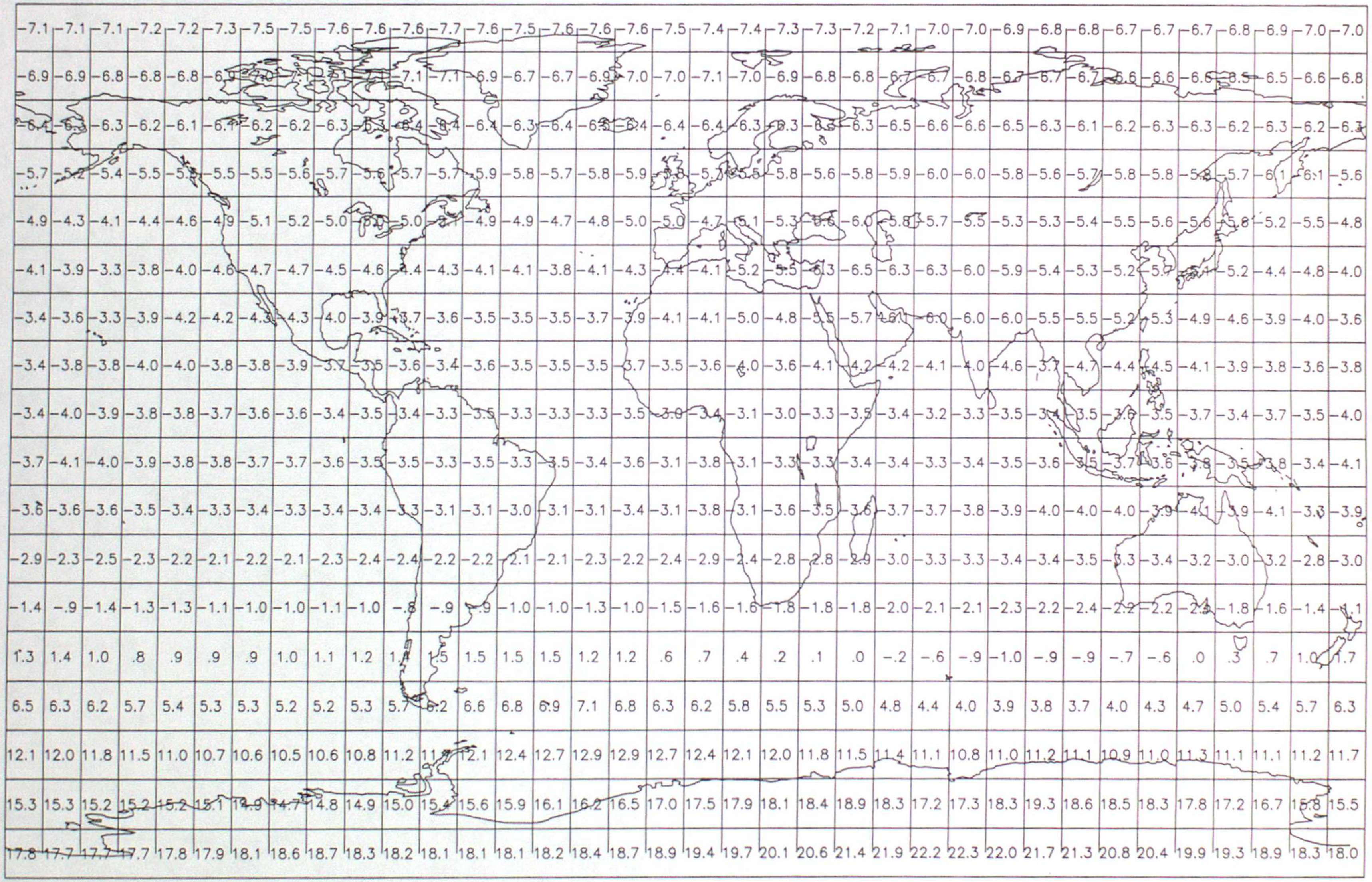
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.6 | 2.7 | 2.7 | 2.7 | 2.6 | 2.5 | 2.3 | 2.4 | 2.4 | 2.3 | 2.3 | 2.4 | 2.3 | 2.3 | 2.6 | 3.1 | 3.1 | 3.0 | 2.9 | 2.9 | 3.1 | 3.1 | 3.1 | 3.2 | 3.2 | 3.1 | 3.0 | 2.9 | 2.8 | 3.0 | 3.0 | 2.9 | 2.7 | 2.7 | 2.6 | 2.5 |
| 3.1 | 3.3 | 3.4 | 3.1 | 2.7 | 2.7 | 2.7 | 2.9 | [illegible] | [illegible] | 3.0 | 2.8 | 2.9 | 2.2 | 2.3 | 2.6 | 2.8 | 2.9 | 3.0 | 2.9 | 2.7 | 2.9 | 3.1 | 3.1 | 3.2 | 3.1 | 2.9 | 2.8 | 2.8 | 2.7 | 2.9 | 2.6 | 2.4 | 2.4 | 2.3 | 2.6 |
| 2.7 | 2.7 | 3.1 | 3.4 | 3.3 | 3.0 | 3.1 | 3.5 | 3.6 | 3.5 | 3.4 | 3.2 | 3.4 | 3.1 | 3.6 | 3.3 | 3.2 | 3.2 | 3.2 | 3.2 | 3.1 | 2.9 | 2.8 | 3.2 | 3.0 | 3.2 | 3.0 | 2.8 | 3.1 | 3.2 | 3.2 | 3.0 | 2.7 | 3.0 | 2.9 | 2.8 |
| 3.7 | 3.8 | 3.5 | 3.1 | 3.3 | 3.7 | 3.4 | 3.5 | 4.0 | 4.0 | 4.0 | 3.6 | 3.4 | 3.3 | 3.7 | 3.7 | 3.3 | 3.2 | 3.2 | 3.1 | 3.5 | 3.5 | 3.3 | 3.4 | 3.3 | 3.1 | 3.1 | 3.0 | 3.4 | 3.6 | 3.8 | 3.6 | 3.6 | 3.3 | 3.4 | 3.3 |
| 3.8 | 3.5 | 3.5 | 3.1 | 3.4 | 3.6 | 4.0 | 4.1 | 4.4 | 4.7 | 4.5 | 4.5 | 3.9 | 3.5 | 3.3 | 3.4 | 4.1 | 4.5 | 4.4 | 4.4 | 4.8 | 5.1 | 4.3 | 4.5 | 4.9 | 4.1 | 3.9 | 4.0 | 3.8 | 3.7 | 3.9 | 3.9 | 3.8 | 3.7 | 3.8 | 3.5 |
| 3.5 | 3.2 | 3.3 | 3.5 | 3.5 | 4.0 | 4.4 | 4.2 | 4.3 | 4.4 | 4.3 | 3.7 | 3.5 | 3.3 | 3.3 | 3.8 | 4.2 | 4.5 | 4.8 | 4.0 | 4.2 | 4.4 | 4.7 | 4.4 | 4.9 | 3.7 | 3.9 | 3.6 | 3.2 | 3.8 | 3.4 | [illegible] | 2.8 | 3.6 | 3.8 | 3.1 |
| 3.6 | 3.5 | 3.9 | 3.8 | 4.1 | 3.8 | 3.2 | 3.3 | 3.8 | 3.6 | 3.7 | 3.3 | 3.3 | 3.2 | 3.0 | 3.1 | 4.5 | 4.1 | 4.2 | 3.5 | 4.3 | 4.8 | 4.8 | 4.0 | 5.3 | 3.1 | 2.1 | 2.1 | 2.5 | 2.6 | 2.7 | 3.0 | 2.8 | 3.0 | 3.1 | 3.3 |
| 3.7 | 4.0 | 4.2 | 4.2 | 3.8 | 3.3 | 3.2 | 2.5 | 2.7 | 3.0 | 3.4 | 3.2 | 3.2 | 3.5 | 3.6 | 3.4 | 3.9 | 3.6 | 3.4 | 4.0 | 3.4 | 3.1 | 3.4 | 3.1 | 2.6 | 2.4 | 2.2 | 2.0 | 2.7 | 2.6 | 2.5 | 2.6 | 2.7 | 2.7 | 2.8 | 2.9 |
| 3.3 | 3.3 | 3.5 | 3.5 | 3.6 | 3.8 | 3.6 | 3.6 | 3.7 | 3.5 | 2.6 | 3.4 | 3.2 | 3.3 | 3.5 | 3.8 | 3.9 | 3.5 | 2.9 | 2.4 | 2.3 | 3.4 | 2.8 | 2.9 | 2.4 | 2.2 | 2.1 | [illegible] | 2.6 | 2.6 | 2.2 | 2.4 | 2.5 | 2.5 | 2.7 | 3.0 |
| 3.7 | 3.7 | 3.3 | 3.0 | 3.0 | 3.3 | 3.5 | 3.0 | 3.3 | 4.1 | 3.9 | 3.6 | 3.3 | 3.7 | 3.1 | 2.7 | 2.5 | 2.7 | 3.3 | 4.5 | 3.8 | 3.6 | 2.7 | 3.7 | 3.6 | 3.9 | 3.7 | 4.0 | 3.7 | 3.2 | 3.2 | 3.2 | 2.9 | 3.0 | 2.8 | 3.7 |
| 3.6 | 3.6 | 4.0 | 3.7 | 3.3 | 3.2 | 3.1 | 3.4 | 3.2 | 3.4 | 4.0 | 3.6 | 3.4 | 3.5 | 3.4 | 3.1 | 2.5 | 3.0 | 2.9 | 2.9 | 3.9 | 3.0 | 2.4 | 3.1 | 3.5 | 4.4 | 4.2 | 4.1 | 3.5 | 3.7 | 4.2 | 4.1 | 4.5 | 4.9 | 4.7 | 4.4 |
| 5.1 | 5.0 | 4.4 | 4.8 | 5.0 | 4.8 | 4.1 | 4.5 | 4.4 | 4.4 | 4.3 | 4.8 | 4.9 | 4.9 | 4.5 | 5.0 | 4.3 | 4.2 | 4.3 | 4.3 | 4.1 | 3.5 | 3.2 | 2.8 | 2.8 | 3.4 | 3.7 | 3.3 | 3.1 | 3.6 | 4.1 | 4.4 | 4.4 | 4.6 | 4.1 | 4.4 |
| 4.2 | 4.5 | 4.1 | 4.4 | 3.9 | 4.1 | 4.0 | 4.2 | 4.6 | 4.4 | 4.7 | 4.2 | 4.3 | 4.0 | 3.9 | 4.4 | 4.9 | 4.8 | 5.2 | 4.8 | 4.7 | 4.8 | 4.4 | 4.0 | 4.3 | 4.4 | 4.6 | 4.6 | 4.5 | 4.4 | 4.4 | [illegible] | 4.9 | 4.7 | 4.0 | 4.3 |
| 3.7 | 3.5 | 3.5 | 3.6 | 4.0 | 3.9 | 3.6 | 4.0 | 4.2 | 4.0 | 3.8 | 3.3 | 3.4 | 3.3 | 3.3 | 3.5 | 3.3 | 3.1 | 3.3 | 3.6 | 3.6 | 3.9 | 3.6 | 3.5 | 3.2 | 3.3 | 3.2 | 3.2 | 3.5 | 3.6 | 3.6 | 3.7 | 3.7 | 3.9 | 4.2 | 4.0 |
| 3.7 | 3.2 | 3.0 | 3.3 | 3.2 | 3.2 | 3.6 | 3.5 | 3.1 | 3.1 | 3.0 | 3.1 | 3.1 | 3.1 | 2.9 | 3.0 | 3.3 | 3.1 | 2.9 | 3.2 | 3.3 | 3.4 | 3.2 | 2.9 | 2.9 | 2.8 | 2.9 | 2.9 | 3.0 | 3.2 | 3.2 | 3.5 | 3.7 | 4.0 | 4.0 | 3.6 |
| 3.7 | 3.4 | 3.0 | 2.9 | 2.9 | 2.9 | 2.9 | 3.0 | 3.1 | 3.2 | 3.2 | 3.8 | 3.4 | 3.2 | 2.9 | 2.8 | 2.9 | 2.8 | 2.7 | 2.7 | 2.8 | 2.9 | 4.6 | 6.6 | 5.0 | 2.9 | 5.2 | 6.5 | 7.0 | 6.0 | 6.5 | 7.4 | 5.9 | 4.6 | 3.9 | 3.9 |
| 3.0 | 3.0 | 3.6 | 4.3 | 5.5 | 6.3 | 6.3 | 6.0 | 6.2 | 5.8 | 4.3 | 3.7 | 2.6 | 3.1 | 3.6 | 5.8 | 6.9 | 7.9 | 8.6 | 9.8 | 11.2 | 11.4 | 10.6 | 7.2 | 8.8 | 9.4 | 8.8 | 9.2 | 8.4 | 9.1 | 8.0 | 6.4 | 6.1 | 6.1 | 6.7 | 3.3 |
| 7.8 | 7.3 | 7.5 | 7.3 | 7.0 | 6.7 | 6.2 | 5.5 | 5.7 | 5.6 | 6.2 | 6.5 | 6.8 | 6.8 | 6.6 | 5.3 | 4.6 | 4.0 | 4.7 | 4.9 | 4.6 | 5.0 | 5.9 | 5.9 | 5.7 | 6.4 | 5.9 | 5.2 | 4.3 | 4.6 | 4.5 | 4.7 | 5.5 | 6.5 | 8.5 | 7.8 |

ATOVS : MEAN O−B BRIGHTNESS TEMPERATURE DIFFERENCES (DEG C)

FIGURE 32

AUGUST 2000 : HIRS4 channel (400 hPa)

NOAA−15, USING ALL OBSERVATIONS



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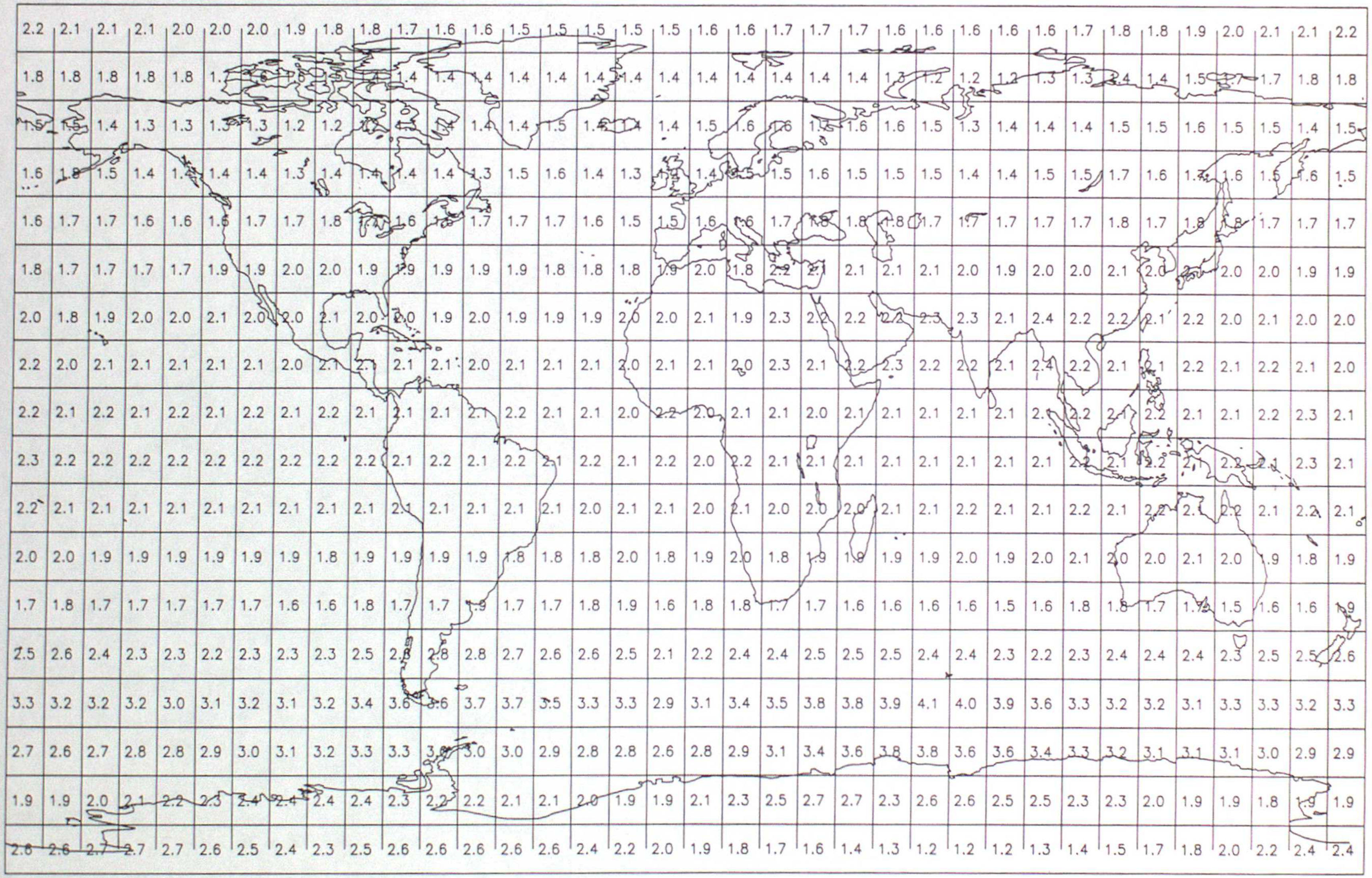
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| −7.1 | −7.1 | −7.1 | −7.2 | −7.2 | −7.3 | −7.5 | −7.5 | −7.6 | −7.6 | −7.6 | −7.7 | −7.6 | −7.5 | −7.6 | −7.6 | −7.6 | −7.5 | −7.4 | −7.4 | −7.3 | −7.3 | −7.2 | −7.1 | −7.0 | −7.0 | −6.9 | −6.8 | −6.8 | −6.7 | −6.7 | −6.7 | −6.8 | −6.9 | −7.0 | −7.0 |
| −6.9 | −6.9 | −6.8 | −6.8 | −6.8 | −6.9 | −7.0 | −7.1 | −7.1 | −7.1 | −7.1 | −7.1 | −6.9 | −6.7 | −6.7 | −6.9 | −7.0 | −7.0 | −7.1 | −7.0 | −6.9 | −6.8 | −6.8 | −6.7 | −6.7 | −6.8 | −6.7 | −6.7 | −6.7 | −6.6 | −6.6 | −6.6 | −6.5 | −6.5 | −6.6 | −6.8 |
| −6.4 | −6.3 | −6.3 | −6.2 | −6.1 | −6.1 | −6.2 | −6.2 | −6.3 | −6.3 | −6.4 | −6.4 | −6.4 | −6.3 | −6.4 | −6.3 | −6.4 | −6.4 | −6.4 | −6.3 | −6.3 | −6.3 | −6.3 | −6.5 | −6.6 | −6.6 | −6.5 | −6.3 | −6.1 | −6.2 | −6.3 | −6.3 | −6.2 | −6.3 | −6.2 | −6.3 |
| −5.7 | −5.2 | −5.4 | −5.5 | −5.5 | −5.5 | −5.5 | −5.6 | −5.7 | −5.6 | −5.7 | −5.7 | −5.9 | −5.8 | −5.7 | −5.8 | −5.9 | −5.8 | −5.7 | −5.5 | −5.8 | −5.6 | −5.8 | −5.9 | −6.0 | −6.0 | −5.8 | −5.6 | −5.7 | −5.8 | −5.8 | −5.8 | −5.7 | −6.1 | −6.1 | −5.6 |
| −4.9 | −4.3 | −4.1 | −4.4 | −4.6 | −4.9 | −5.1 | −5.2 | −5.0 | −5.0 | −5.0 | −5.1 | −4.9 | −4.9 | −4.7 | −4.8 | −5.0 | −5.0 | −4.7 | −5.1 | −5.3 | −5.6 | −6.0 | −5.8 | −5.7 | −5.5 | −5.3 | −5.3 | −5.4 | −5.5 | −5.6 | −5.6 | −5.8 | −5.2 | −5.5 | −4.8 |
| −4.1 | −3.9 | −3.3 | −3.8 | −4.0 | −4.6 | −4.7 | −4.7 | −4.5 | −4.6 | −4.4 | −4.3 | −4.1 | −4.1 | −3.8 | −4.1 | −4.3 | −4.4 | −4.1 | −5.2 | −5.5 | −6.3 | −6.5 | −6.3 | −6.3 | −6.0 | −5.9 | −5.4 | −5.3 | −5.2 | −5.7 | −5.1 | −5.2 | −4.4 | −4.8 | −4.0 |
| −3.4 | −3.6 | −3.3 | −3.9 | −4.2 | −4.2 | −4.3 | −4.3 | −4.0 | −3.9 | −3.7 | −3.6 | −3.5 | −3.5 | −3.5 | −3.7 | −3.9 | −4.1 | −4.1 | −5.0 | −4.8 | −5.5 | −5.7 | −6.1 | −6.0 | −6.0 | −6.0 | −5.5 | −5.5 | −5.2 | −5.3 | −4.9 | −4.6 | −3.9 | −4.0 | −3.6 |
| −3.4 | −3.8 | −3.8 | −4.0 | −4.0 | −3.8 | −3.8 | −3.9 | −3.7 | −3.5 | −3.6 | −3.4 | −3.6 | −3.5 | −3.5 | −3.5 | −3.7 | −3.5 | −3.6 | −4.0 | −3.6 | −4.1 | −4.2 | −4.2 | −4.1 | −4.0 | −4.6 | −3.7 | −4.7 | −4.4 | −4.5 | −4.1 | −3.9 | −3.8 | −3.6 | −3.8 |
| −3.4 | −4.0 | −3.9 | −3.8 | −3.8 | −3.7 | −3.6 | −3.6 | −3.4 | −3.5 | −3.4 | −3.3 | −3.5 | −3.3 | −3.3 | −3.3 | −3.5 | −3.0 | −3.4 | −3.1 | −3.0 | −3.3 | −3.5 | −3.4 | −3.2 | −3.3 | −3.5 | −3.4 | −3.5 | −3.6 | −3.5 | −3.7 | −3.4 | −3.7 | −3.5 | −4.0 |
| −3.7 | −4.1 | −4.0 | −3.9 | −3.8 | −3.8 | −3.7 | −3.7 | −3.6 | −3.5 | −3.5 | −3.3 | −3.5 | −3.3 | −3.5 | −3.4 | −3.6 | −3.1 | −3.8 | −3.1 | −3.3 | −3.3 | −3.4 | −3.4 | −3.3 | −3.4 | −3.5 | −3.6 | −3.5 | −3.7 | −3.6 | −3.8 | −3.5 | −3.8 | −3.4 | −4.1 |
| −3.6 | −3.6 | −3.6 | −3.5 | −3.4 | −3.3 | −3.4 | −3.3 | −3.4 | −3.4 | −3.3 | −3.1 | −3.1 | −3.0 | −3.1 | −3.1 | −3.4 | −3.1 | −3.8 | −3.1 | −3.6 | −3.5 | −3.6 | −3.7 | −3.7 | −3.8 | −3.9 | −4.0 | −4.0 | −4.0 | −3.9 | −4.1 | −3.9 | −4.1 | −3.3 | −3.9 |
| −2.9 | −2.3 | −2.5 | −2.3 | −2.2 | −2.1 | −2.2 | −2.1 | −2.3 | −2.4 | −2.4 | −2.2 | −2.2 | −2.1 | −2.1 | −2.3 | −2.2 | −2.4 | −2.9 | −2.4 | −2.8 | −2.8 | −2.9 | −3.0 | −3.3 | −3.3 | −3.4 | −3.4 | −3.5 | −3.3 | −3.4 | −3.2 | −3.0 | −3.2 | −2.8 | −3.0 |
| −1.4 | −.9 | −1.4 | −1.3 | −1.3 | −1.1 | −1.0 | −1.0 | −1.1 | −1.0 | −.8 | −.9 | −.9 | −1.0 | −1.0 | −1.3 | −1.0 | −1.5 | −1.6 | −1.6 | −1.8 | −1.8 | −1.8 | −2.0 | −2.1 | −2.1 | −2.3 | −2.2 | −2.4 | −2.2 | −2.2 | −2.3 | −1.8 | −1.6 | −1.4 | −1.1 |
| 1.3 | 1.4 | 1.0 | .8 | .9 | .9 | .9 | 1.0 | 1.1 | 1.2 | 1.4 | 1.5 | 1.5 | 1.5 | 1.5 | 1.2 | 1.2 | .6 | .7 | .4 | .2 | .1 | .0 | −.2 | −.6 | −.9 | −1.0 | −.9 | −.9 | −.7 | −.6 | .0 | .3 | .7 | 1.0 | 1.7 |
| 6.5 | 6.3 | 6.2 | 5.7 | 5.4 | 5.3 | 5.3 | 5.2 | 5.2 | 5.3 | 5.7 | 6.2 | 6.6 | 6.8 | 6.9 | 7.1 | 6.8 | 6.3 | 6.2 | 5.8 | 5.5 | 5.3 | 5.0 | 4.8 | 4.4 | 4.0 | 3.9 | 3.8 | 3.7 | 4.0 | 4.3 | 4.7 | 5.0 | 5.4 | 5.7 | 6.3 |
| 12.1 | 12.0 | 11.8 | 11.5 | 11.0 | 10.7 | 10.6 | 10.5 | 10.6 | 10.8 | 11.2 | [illegible] | 12.1 | 12.4 | 12.7 | 12.9 | 12.9 | 12.7 | 12.4 | 12.1 | 12.0 | 11.8 | 11.5 | 11.4 | 11.1 | 10.8 | 11.0 | 11.2 | 11.1 | 10.9 | 11.0 | 11.3 | 11.1 | 11.1 | 11.2 | 11.7 |
| 15.3 | 15.3 | 15.2 | 15.2 | 15.2 | 15.1 | 14.9 | 14.7 | 14.8 | 14.9 | 15.0 | 15.4 | 15.6 | 15.9 | 16.1 | 16.2 | 16.5 | 17.0 | 17.5 | 17.9 | 18.1 | 18.4 | 18.9 | 18.3 | 17.2 | 17.3 | 18.3 | 19.3 | 18.6 | 18.5 | 18.3 | 17.8 | 17.2 | 16.7 | 15.8 | 15.5 |
| 17.8 | 17.7 | 17.7 | 17.7 | 17.8 | 17.9 | 18.1 | 18.6 | 18.7 | 18.3 | 18.2 | 18.1 | 18.1 | 18.1 | 18.2 | 18.4 | 18.7 | 18.9 | 19.4 | 19.7 | 20.1 | 20.6 | 21.4 | 21.9 | 22.2 | 22.3 | 22.0 | 21.7 | 21.3 | 20.8 | 20.4 | 19.9 | 19.3 | 18.9 | 18.3 | 18.0 |

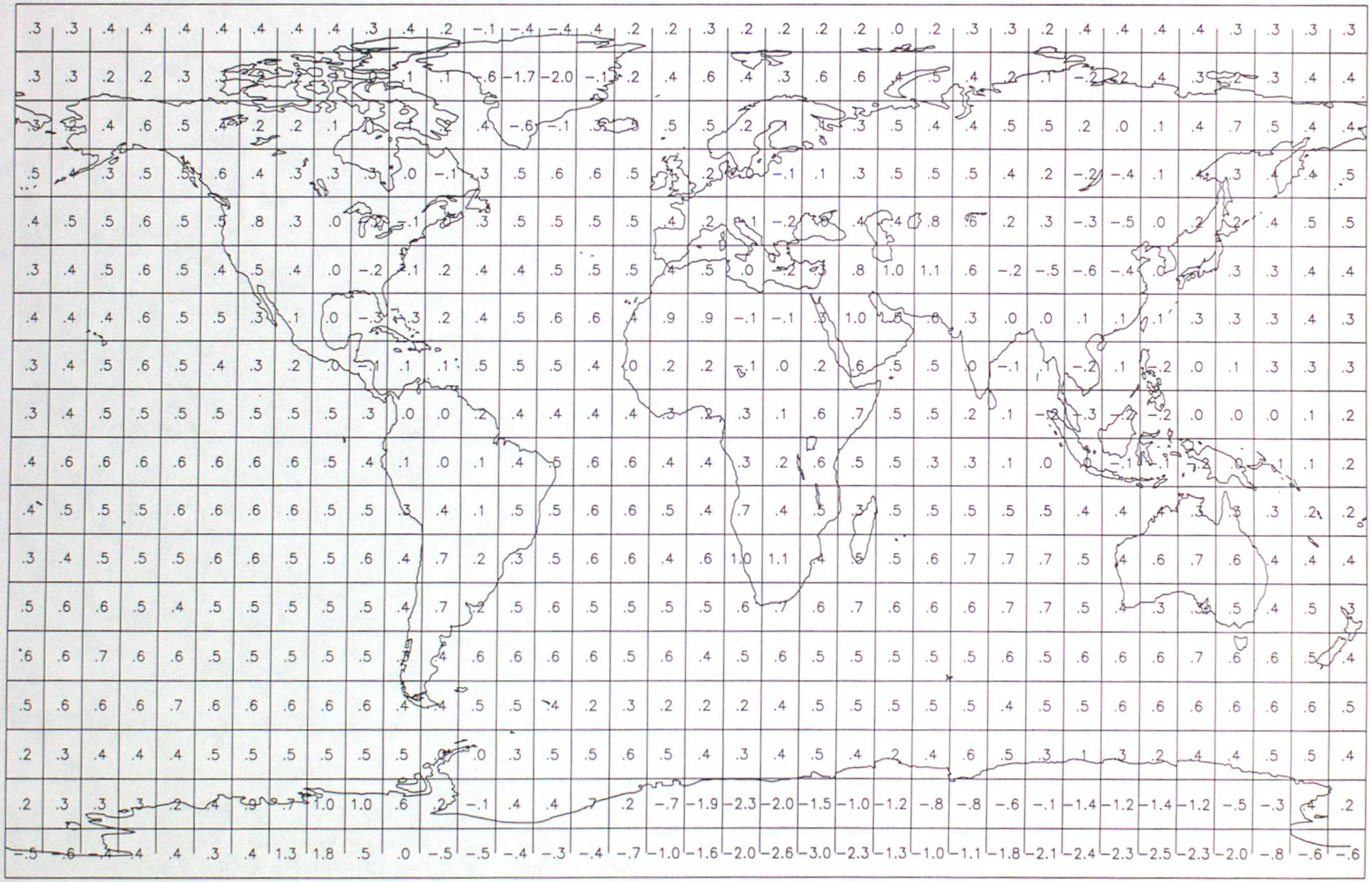
ATOVS : SD O–B BRIGHTNESS TEMPERATURE DIFFERENCES(DEG C)
AUGUST 2000 : HIRS4 channel (400 hPa)
NOAA–15, USING ALL OBSERVATIONS

FIGURE 33



| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.2 | 2.1 | 2.1 | 2.1 | 2.0 | 2.0 | 2.0 | 1.9 | 1.8 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.6 | 1.6 | 1.7 | 1.7 | 1.7 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.7 | 1.8 | 1.8 | 1.9 | 2.0 | 2.1 | 2.1 | 2.2 |
| 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | [illegible] | 1.6 | 1.6 | 1.5 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.3 | 1.2 | 1.2 | 1.2 | 1.3 | 1.3 | 1.4 | 1.4 | 1.5 | 1.7 | 1.7 | 1.8 | 1.8 |
| 1.5 | 1.5 | 1.4 | 1.3 | 1.3 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.3 | 1.4 | 1.4 | 1.4 | 1.5 | 1.4 | 1.4 | 1.4 | 1.5 | 1.6 | 1.6 | 1.5 | 1.6 | 1.6 | 1.5 | 1.3 | 1.4 | 1.4 | 1.4 | 1.5 | 1.5 | 1.6 | 1.5 | 1.5 | 1.4 | 1.5 |
| 1.6 | 1.8 | 1.5 | 1.4 | 1.4 | 1.4 | 1.4 | 1.3 | 1.4 | 1.4 | 1.4 | 1.4 | 1.3 | 1.5 | 1.6 | 1.4 | 1.3 | 1.4 | 1.4 | 1.5 | 1.5 | 1.6 | 1.5 | 1.5 | 1.5 | 1.4 | 1.4 | 1.5 | 1.5 | 1.7 | 1.6 | 1.7 | 1.6 | 1.5 | 1.6 | 1.5 |
| 1.6 | 1.7 | 1.7 | 1.6 | 1.6 | 1.6 | 1.7 | 1.7 | 1.8 | 1.7 | 1.6 | 1.6 | 1.7 | 1.7 | 1.7 | 1.6 | 1.5 | 1.5 | 1.6 | 1.6 | 1.7 | 1.8 | 1.8 | 1.8 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.8 | 1.7 | 1.8 | 1.8 | 1.7 | 1.7 | 1.7 |
| 1.8 | 1.7 | 1.7 | 1.7 | 1.7 | 1.9 | 1.9 | 2.0 | 2.0 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.8 | 1.8 | 1.8 | 1.9 | 2.0 | 1.8 | 2.2 | 2.1 | 2.1 | 2.1 | 2.1 | 2.0 | 1.9 | 2.0 | 2.0 | 2.1 | 2.0 | [illegible] | 2.0 | 2.0 | 1.9 | 1.9 |
| 2.0 | 1.8 | 1.9 | 2.0 | 2.0 | 2.1 | 2.0 | 2.0 | 2.1 | 2.0 | 2.0 | 1.9 | 2.0 | 1.9 | 1.9 | 1.9 | 2.0 | 2.0 | 2.1 | 1.9 | 2.3 | 2.2 | 2.2 | 2.2 | 2.3 | 2.3 | 2.1 | 2.4 | 2.2 | 2.2 | 2.1 | 2.2 | 2.0 | 2.1 | 2.0 | 2.0 |
| 2.2 | 2.0 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.0 | 2.1 | 2.1 | 2.1 | 2.1 | 2.0 | 2.1 | 2.1 | 2.1 | 2.0 | 2.1 | 2.1 | 2.0 | 2.3 | 2.1 | 2.2 | 2.3 | 2.2 | 2.2 | 2.1 | 2.4 | 2.2 | 2.1 | 2.1 | 2.2 | 2.1 | 2.2 | 2.1 | 2.0 |
| 2.2 | 2.1 | 2.2 | 2.1 | 2.2 | 2.1 | 2.2 | 2.1 | 2.2 | 2.1 | 2.1 | 2.1 | 2.1 | 2.2 | 2.1 | 2.1 | 2.0 | 2.2 | 2.0 | 2.1 | 2.1 | 2.0 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | [illegible] | 2.2 | 2.1 | 2.2 | 2.1 | 2.1 | 2.2 | 2.3 | 2.1 |
| 2.3 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.1 | 2.2 | 2.1 | 2.2 | 2.1 | 2.2 | 2.1 | 2.2 | 2.0 | 2.2 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.2 | 2.1 | 2.2 | 2.1 | 2.2 | 2.1 | 2.3 | 2.1 |
| 2.2 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.0 | 2.1 | 2.1 | 2.0 | 2.1 | 2.0 | 2.0 | 2.0 | 2.1 | 2.1 | 2.2 | 2.1 | 2.1 | 2.2 | 2.1 | 2.2 | 2.1 | 2.2 | 2.1 | 2.2 | 2.1 |
| 2.0 | 2.0 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.8 | 1.9 | 1.9 | 1.9 | 1.9 | 1.8 | 1.8 | 1.8 | 2.0 | 1.8 | 1.9 | 2.0 | 1.8 | 1.9 | 1.9 | 1.9 | 1.9 | 2.0 | 1.9 | 2.0 | 2.1 | 2.0 | 2.0 | 2.1 | 2.0 | 1.9 | 1.8 | 1.9 |
| 1.7 | 1.8 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.6 | 1.6 | 1.8 | 1.7 | 1.7 | 1.9 | 1.7 | 1.7 | 1.8 | 1.9 | 1.6 | 1.8 | 1.8 | 1.7 | 1.7 | 1.6 | 1.6 | 1.6 | 1.6 | 1.5 | 1.6 | 1.8 | 1.8 | 1.7 | 1.7 | 1.5 | 1.6 | 1.6 | 1.9 |
| 2.5 | 2.6 | 2.4 | 2.3 | 2.3 | 2.2 | 2.3 | 2.3 | 2.3 | 2.5 | 2.8 | 2.8 | 2.8 | 2.7 | 2.6 | 2.6 | 2.5 | 2.1 | 2.2 | 2.4 | 2.4 | 2.5 | 2.5 | 2.5 | 2.4 | 2.4 | 2.3 | 2.2 | 2.3 | 2.4 | 2.4 | 2.4 | 2.3 | 2.5 | 2.5 | 2.6 |
| 3.3 | 3.2 | 3.2 | 3.2 | 3.0 | 3.1 | 3.2 | 3.1 | 3.2 | 3.4 | 3.6 | 3.6 | 3.7 | 3.7 | 3.5 | 3.3 | 3.3 | 2.9 | 3.1 | 3.4 | 3.5 | 3.8 | 3.8 | 3.9 | 4.1 | 4.0 | 3.9 | 3.6 | 3.3 | 3.2 | 3.2 | 3.1 | 3.3 | 3.3 | 3.2 | 3.3 |
| 2.7 | 2.6 | 2.7 | 2.8 | 2.8 | 2.9 | 3.0 | 3.1 | 3.2 | 3.3 | 3.3 | 3.6 | 3.0 | 3.0 | 2.9 | 2.8 | 2.8 | 2.6 | 2.8 | 2.9 | 3.1 | 3.4 | 3.6 | 3.8 | 3.8 | 3.6 | 3.6 | 3.4 | 3.3 | 3.2 | 3.1 | 3.1 | 3.1 | 3.0 | 2.9 | 2.9 |
| 1.9 | 1.9 | 2.0 | 2.1 | 2.2 | 2.3 | 2.4 | 2.4 | 2.4 | 2.4 | 2.3 | 2.2 | 2.2 | 2.1 | 2.1 | 2.0 | 1.9 | 1.9 | 2.1 | 2.3 | 2.5 | 2.7 | 2.7 | 2.3 | 2.6 | 2.6 | 2.5 | 2.5 | 2.3 | 2.3 | 2.0 | 1.9 | 1.9 | 1.8 | 1.9 | 1.9 |
| 2.6 | 2.6 | 2.7 | 2.7 | 2.7 | 2.6 | 2.5 | 2.4 | 2.3 | 2.5 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.4 | 2.2 | 2.0 | 1.9 | 1.8 | 1.7 | 1.6 | 1.4 | 1.3 | 1.2 | 1.2 | 1.2 | 1.3 | 1.4 | 1.5 | 1.7 | 1.8 | 2.0 | 2.2 | 2.4 | 2.4 |

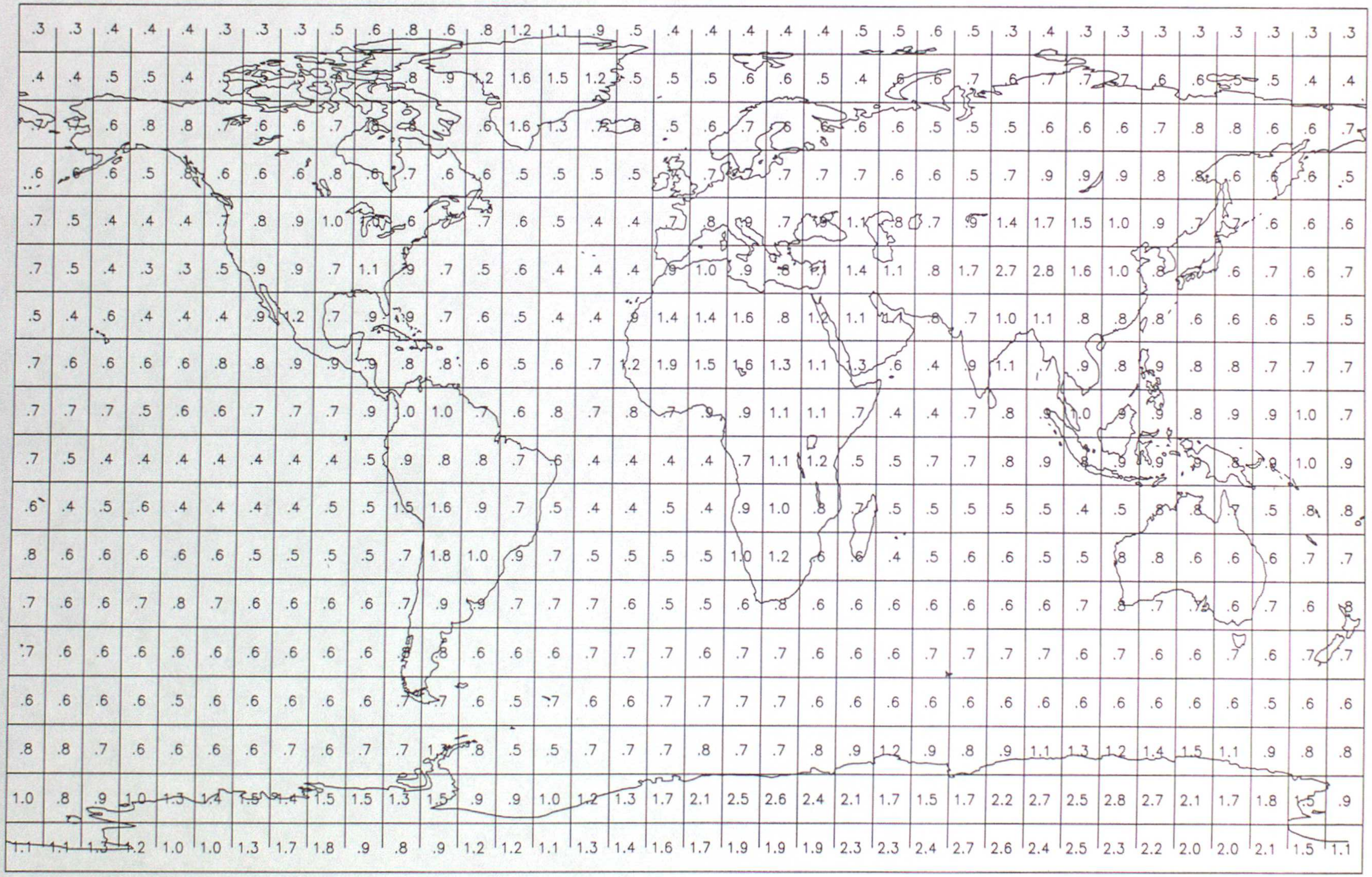
ATOVS : MEAN O−B BRIGHTNESS TEMPERATURE DIFFERENCES (DEG C)   FIGURE 34
AUGUST 2000   : AMSUA−5 Channel (700 hPa)
NOAA−15, USING ALL OBSERVATIONS



| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| .3 | .3 | .4 | .4 | .4 | .4 | .4 | .4 | .4 | .3 | .4 | .2 | −.1 | −.4 | −.4 | .4 | .2 | .2 | .3 | .2 | .2 | .2 | .2 | .0 | .2 | .3 | .3 | .2 | .4 | .4 | .4 | .4 | .3 | .3 | .3 | .3 |
| .3 | .3 | .2 | .2 | .3 | .3 | .2 | [illegible] | .4 | [illegible] | .1 | .1 | .6 | −1.7 | −2.0 | −.1 | .2 | .4 | .6 | .4 | .3 | .6 | .6 | .4 | .5 | .4 | .2 | .1 | −.2 | .2 | .4 | .3 | .2 | .3 | .4 | .4 |
| .3 | .2 | .4 | .6 | .5 | .4 | .2 | .2 | .1 | [illegible] | .1 | .2 | .4 | −.6 | −.1 | .3 | .5 | .5 | .5 | .2 | .1 | .1 | .3 | .5 | .4 | .4 | .5 | .5 | .2 | .0 | .1 | .4 | .7 | .5 | .4 | .4 |
| .5 | .4 | .3 | .5 | .5 | .6 | .4 | .3 | .3 | .3 | .0 | −.1 | .3 | .5 | .6 | .6 | .5 | [illegible] | .2 | .0 | −.1 | .1 | .3 | .5 | .5 | .5 | .4 | .2 | −.2 | −.4 | .1 | .4 | .3 | .4 | .4 | .5 |
| .4 | .5 | .5 | .6 | .5 | .5 | .8 | .3 | .0 | .2 | −.1 | [illegible] | .3 | .5 | .5 | .5 | .5 | .4 | .2 | .1 | −.2 | .0 | .4 | .4 | .8 | .6 | .2 | .3 | −.3 | −.5 | .0 | .2 | .2 | .4 | .5 | .5 |
| .3 | .4 | .5 | .6 | .5 | .4 | .5 | .4 | .0 | −.2 | .1 | .2 | .4 | .4 | .5 | .5 | .5 | .4 | .5 | .0 | −.2 | .3 | .8 | 1.0 | 1.1 | .6 | −.2 | −.5 | −.6 | −.4 | .0 | [illegible] | .3 | .3 | .4 | .4 |
| .4 | .4 | .4 | .6 | .5 | .5 | .3 | .1 | .0 | −.3 | .3 | .2 | .4 | .5 | .6 | .6 | .4 | .9 | .9 | −.1 | −.1 | .3 | 1.0 | .8 | .6 | .3 | .0 | .0 | .1 | .1 | .1 | .3 | .3 | .3 | .4 | .3 |
| .3 | .4 | .5 | .6 | .5 | .4 | .3 | .2 | .0 | −.1 | .1 | .1 | .5 | .5 | .5 | .4 | .0 | .2 | .2 | .1 | .0 | .2 | .6 | .5 | .5 | .0 | −.1 | .1 | −.2 | .1 | −.2 | .0 | .1 | .3 | .3 | .3 |
| .3 | .4 | .5 | .5 | .5 | .5 | .5 | .5 | .5 | .3 | .0 | .0 | .2 | .4 | .4 | .4 | .4 | .3 | .2 | .3 | .1 | .6 | .7 | .5 | .5 | .2 | .1 | −.2 | −.3 | −.2 | −.2 | .0 | .0 | .0 | .1 | .2 |
| .4 | .6 | .6 | .6 | .6 | .6 | .6 | .6 | .5 | .4 | .1 | .0 | .1 | .4 | .5 | .6 | .6 | .4 | .4 | .3 | .2 | .6 | .5 | .5 | .3 | .3 | .1 | .0 | .0 | −.1 | .1 | .2 | .0 | .1 | .1 | .2 |
| .4 | .5 | .5 | .5 | .6 | .6 | .6 | .6 | .5 | .5 | .3 | .4 | .1 | .5 | .5 | .6 | .6 | .5 | .4 | .7 | .4 | .5 | .3 | .5 | .5 | .5 | .5 | .5 | .4 | .4 | .4 | .3 | .3 | .3 | .2 | .2 |
| .3 | .4 | .5 | .5 | .5 | .6 | .6 | .5 | .5 | .6 | .4 | .7 | .2 | .3 | .5 | .6 | .6 | .4 | .6 | 1.0 | 1.1 | .4 | .5 | .5 | .6 | .7 | .7 | .7 | .5 | .4 | .6 | .7 | .6 | .4 | .4 | .4 |
| .5 | .6 | .6 | .5 | .4 | .5 | .5 | .5 | .5 | .5 | .4 | .7 | .2 | .5 | .6 | .5 | .5 | .5 | .5 | .6 | .7 | .6 | .7 | .6 | .6 | .6 | .7 | .7 | .5 | .4 | .3 | .3 | .5 | .4 | .5 | .3 |
| .6 | .6 | .7 | .6 | .6 | .5 | .5 | .5 | .5 | .5 | .5 | .4 | .6 | .6 | .6 | .6 | .5 | .6 | .4 | .5 | .6 | .5 | .5 | .5 | .5 | .5 | .6 | .5 | .6 | .6 | .6 | .7 | .6 | .6 | .5 | .4 |
| .5 | .6 | .6 | .6 | .7 | .6 | .6 | .6 | .6 | .6 | .4 | .4 | .5 | .5 | .4 | .2 | .3 | .2 | .2 | .2 | .4 | .5 | .5 | .5 | .5 | .5 | .4 | .5 | .5 | .6 | .6 | .6 | .6 | .6 | .6 | .5 |
| .2 | .3 | .4 | .4 | .4 | .5 | .5 | .5 | .5 | .5 | .5 | .0 | .0 | .3 | .5 | .5 | .6 | .5 | .4 | .3 | .4 | .5 | .4 | .2 | .4 | .6 | .5 | .3 | .1 | .3 | .2 | .4 | .4 | .5 | .5 | .4 |
| .2 | .3 | .3 | .3 | .2 | .4 | .9 | .7 | 1.0 | 1.0 | .6 | .2 | −.1 | .4 | .4 | .7 | .2 | −.7 | −1.9 | −2.3 | −2.0 | −1.5 | −1.0 | −1.2 | −.8 | −.8 | −.6 | −.1 | −1.4 | −1.2 | −1.4 | −1.2 | −.5 | −.3 | .4 | .2 |
| −.5 | −.6 | −.4 | .4 | .4 | .3 | .4 | 1.3 | 1.8 | .5 | .0 | −.5 | −.5 | −.4 | −.3 | −.4 | −.7 | −1.0 | −1.6 | −2.0 | −2.6 | −3.0 | −2.3 | −1.3 | −1.0 | −1.1 | −1.8 | −2.1 | −2.4 | −2.3 | −2.5 | −2.3 | −2.0 | −.8 | −.6 | −.6 |

ATOVS : SD O–B BRIGHTNESS TEMPERATURE DIFFERENCES(DEG C)
AUGUST 2000 : AMSUA–5 channel (700 hPa)
NOAA–15, USING ALL OBSERVATIONS

FIGURE 35

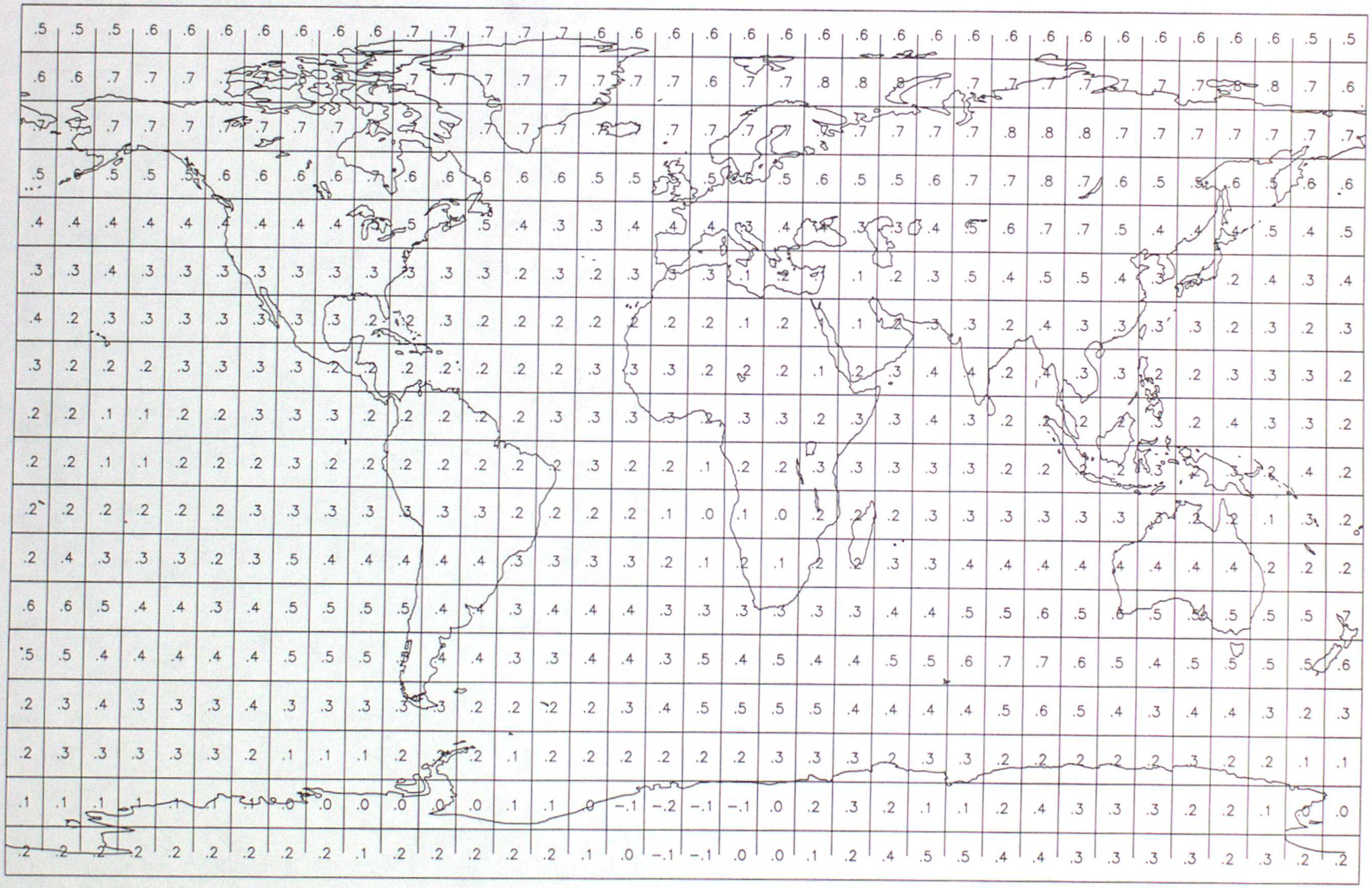

.3 .3 .4 .4 .4 .3 .3 .3 .5 .6 .8 .6 .8 1.2 1.1 .9 .5 .4 .4 .4 .4 .4 .5 .5 .6 .5 .3 .4 .3 .3 .3 .3 .3 .3 .3 .3
.4 .4 .5 .5 .4 .5 .5 .5 .6 .7 .8 .9 1.2 1.6 1.5 1.2 .5 .5 .5 .6 .6 .5 .4 .6 .6 .7 .6 .7 .7 .7 .6 .6 .5 .5 .4 .4
.7 .7 .6 .8 .8 .7 .6 .6 .7 .8 .8 [illegible] .6 1.6 1.3 .7 .8 .5 .6 .7 .6 .6 .6 .6 .5 .5 .5 .6 .6 .6 .7 .8 .8 .6 .6 .7
.6 .6 .6 .5 .8 .6 .6 .6 .8 .6 .7 .6 .6 .5 .5 .5 .5 [illegible] .7 .7 .7 .7 .7 .6 .6 .5 .7 .9 .9 .9 .8 .8 .6 .6 .6 .5
.7 .5 .4 .4 .4 .7 .8 .9 1.0 1.0 .6 [illegible] .7 .6 .5 .4 .4 .7 .8 .9 .7 .9 1.1 .8 .7 .9 1.4 1.7 1.5 1.0 .9 .7 .7 .6 .6 .6
.7 .5 .4 .3 .3 .5 .9 .9 .7 1.1 .9 .7 .5 .6 .4 .4 .4 .9 1.0 .9 .8 1.1 1.4 1.1 .8 1.7 2.7 2.8 1.6 1.0 .8 [illegible] .6 .7 .6 .7
.5 .4 .6 .4 .4 .4 .9 1.2 .7 .9 .9 .7 .6 .5 .4 .4 .9 1.4 1.4 1.6 .8 1.2 1.1 1.1 .8 .7 1.0 1.1 .8 .8 .8 .6 .6 .6 .5 .5
.7 .6 .6 .6 .6 .8 .8 .9 .9 .9 .8 .8 .6 .5 .6 .7 1.2 1.9 1.5 1.6 1.3 1.1 1.3 .6 .4 .9 1.1 .7 .9 .8 .9 .8 .8 .7 .7 .7
.7 .7 .7 .5 .6 .6 .7 .7 .7 .9 1.0 1.0 .7 .6 .8 .7 .8 .7 .9 .9 1.1 1.1 .7 .4 .4 .7 .8 .9 1.0 .9 .9 .8 .9 .9 1.0 .7
.7 .5 .4 .4 .4 .4 .4 .4 .4 .5 .9 .8 .8 .7 .6 .4 .4 .4 .4 .7 1.1 1.2 .5 .5 .7 .7 .8 .9 .8 .9 .9 .9 .8 .9 1.0 .9
.6 .4 .5 .6 .4 .4 .4 .4 .5 .5 1.5 1.6 .9 .7 .5 .4 .4 .5 .4 .9 1.0 .8 .7 .5 .5 .5 .5 .5 .4 .5 .8 .8 .7 .5 .8 .8
.8 .6 .6 .6 .6 .6 .5 .5 .5 .5 .7 1.8 1.0 .9 .7 .5 .5 .5 .5 1.0 1.2 .6 .6 .4 .5 .6 .6 .5 .5 .8 .8 .6 .6 .6 .7 .7
.7 .6 .6 .7 .8 .7 .6 .6 .6 .6 .7 .9 .9 .7 .7 .7 .6 .5 .5 .6 .8 .6 .6 .6 .6 .6 .6 .6 .7 .8 .7 .7 .6 .7 .6 .8
.7 .6 .6 .6 .6 .6 .6 .6 .6 .6 .8 .8 .6 .6 .6 .7 .7 .7 .6 .7 .7 .6 .6 .6 .7 .7 .7 .7 .6 .7 .6 .6 .7 .6 .7 .7
.6 .6 .6 .6 .5 .6 .6 .6 .6 .6 .7 .7 .6 .5 .7 .6 .6 .7 .7 .7 .7 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .5 .6 .6
.8 .8 .7 .6 .6 .6 .6 .7 .6 .7 .7 1.3 .8 .5 .5 .7 .7 .7 .8 .7 .7 .8 .9 1.2 .9 .8 .9 1.1 1.3 1.2 1.4 1.5 1.1 .9 .8 .8
1.0 .8 .9 1.0 1.3 1.4 1.5 1.4 1.5 1.5 1.3 1.5 .9 .9 1.0 1.2 1.3 1.7 2.1 2.5 2.6 2.4 2.1 1.7 1.5 1.7 2.2 2.7 2.5 2.8 2.7 2.1 1.7 1.8 1.5 .9
1.1 1.1 1.3 1.2 1.0 1.0 1.3 1.7 1.8 .9 .8 .9 1.2 1.2 1.1 1.3 1.4 1.6 1.7 1.9 1.9 1.9 2.3 2.3 2.4 2.7 2.6 2.4 2.5 2.3 2.2 2.0 2.0 2.1 1.5 1.1

ATOVS : MEAN O-B BRIGHTNESS TEMPERATURE DIFFERENCES (DEG C)

FIGURE 36

AUGUST 2000 : AMSUA-7 Channel (300 hPa)

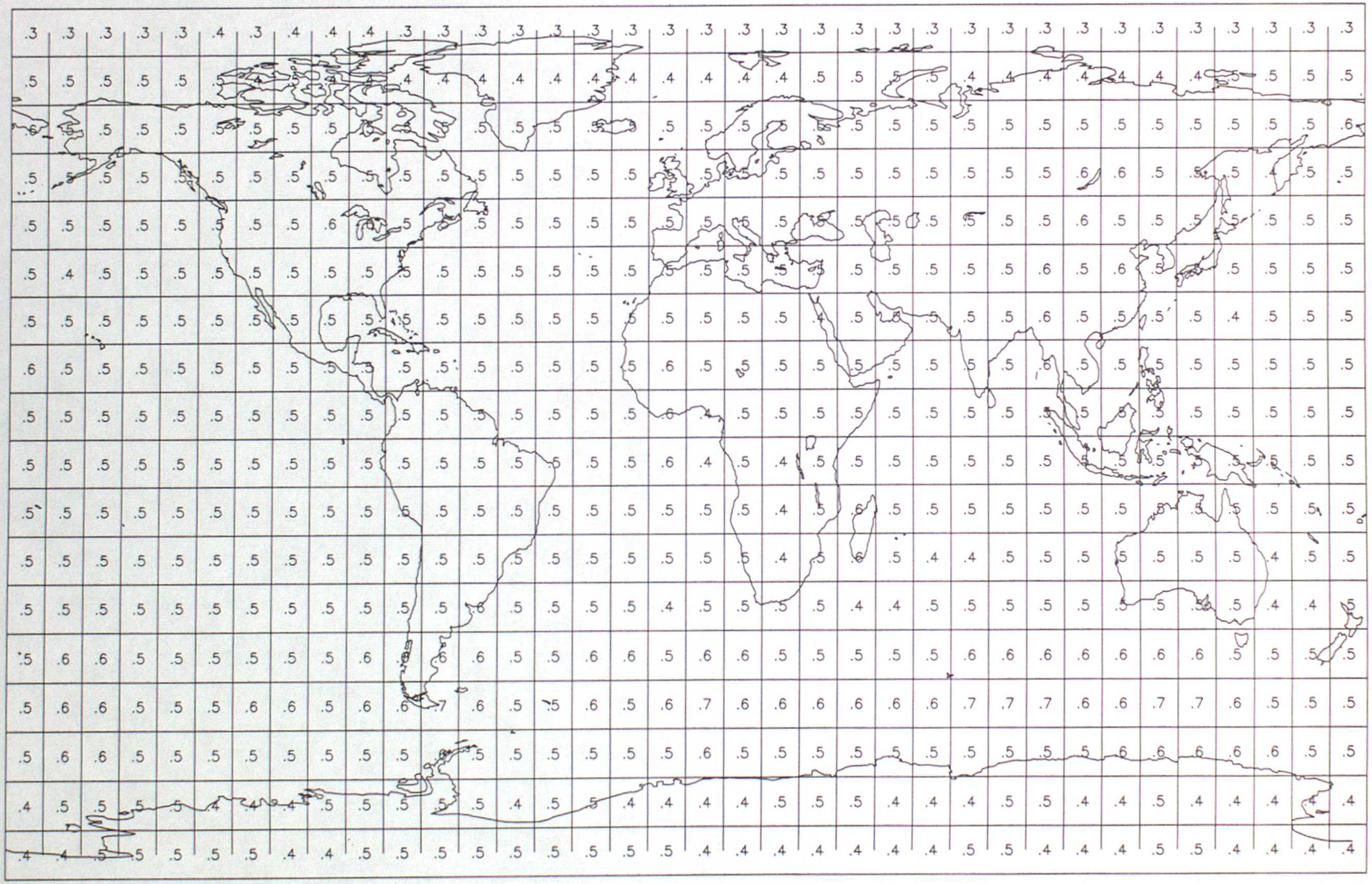
NOAA-15, USING ALL OBSERVATIONS



| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| .5 | .5 | .5 | .6 | .6 | .6 | .6 | .6 | .6 | .6 | .7 | .7 | .7 | .7 | .7 | .6 | .6 | .6 | .6 | .6 | .6 | .6 | .6 | .6 | .6 | .6 | .6 | .6 | .6 | .6 | .6 | .6 | .6 | .6 | .5 | .5 |
| .6 | .6 | .7 | .7 | .7 | [illegible] | .7 | [illegible] | [illegible] | [illegible] | .7 | .7 | .7 | .7 | .7 | .7 | .7 | .7 | .6 | .7 | .7 | .8 | .8 | .8 | .7 | .7 | .7 | .7 | .7 | .7 | .7 | .7 | .8 | .8 | .7 | .6 |
| .7 | .7 | .7 | .7 | .7 | .7 | .7 | .7 | .7 | [illegible] | .7 | [illegible] | .7 | .7 | .7 | .7 | [illegible] | .7 | .7 | .7 | .7 | .7 | .7 | .7 | .7 | .7 | .8 | .8 | .8 | .7 | .7 | .7 | .7 | .7 | .7 | .7 |
| .5 | .6 | .5 | .5 | .5 | .6 | .6 | .6 | .6 | .7 | .6 | .6 | .6 | .6 | .6 | .5 | .5 | .5 | .5 | .6 | .5 | .6 | .5 | .5 | .6 | .7 | .7 | .8 | .7 | .6 | .5 | .5 | .6 | .5 | .6 | .6 |
| .4 | .4 | .4 | .4 | .4 | .4 | .4 | .4 | .4 | [illegible] | .5 | [illegible] | .5 | .4 | .3 | .3 | .4 | .4 | .4 | .3 | .4 | .4 | .3 | .3 | .4 | .5 | .6 | .7 | .7 | .5 | .4 | .4 | .4 | .5 | .4 | .5 |
| .3 | .3 | .4 | .3 | .3 | .3 | .3 | .3 | .3 | .3 | .3 | .3 | .3 | .2 | .3 | .2 | .3 | .3 | .3 | .1 | .2 | .1 | .1 | .2 | .3 | .5 | .4 | .5 | .5 | .4 | .3 | [illegible] | .2 | .4 | .3 | .4 |
| .4 | .2 | .3 | .3 | .3 | .3 | .3 | .3 | .3 | .2 | .2 | .3 | .2 | .2 | .2 | .2 | .2 | .2 | .2 | .1 | .2 | .1 | .1 | .2 | .3 | .3 | .2 | .4 | .3 | .3 | .3 | .3 | .2 | .3 | .2 | .3 |
| .3 | .2 | .2 | .2 | .3 | .3 | .3 | .3 | .2 | .2 | .2 | .2 | .2 | .2 | .2 | .3 | .3 | .3 | .2 | .2 | .2 | .1 | .2 | .3 | .4 | .4 | .2 | .4 | .3 | .3 | .2 | .2 | .3 | .3 | .3 | .2 |
| .2 | .2 | .1 | .1 | .2 | .2 | .3 | .3 | .3 | .2 | .2 | .2 | .2 | .2 | .3 | .3 | .3 | .3 | .2 | .3 | .3 | .2 | .3 | .3 | .4 | .3 | .2 | .2 | .2 | .2 | .3 | .2 | .4 | .3 | .3 | .2 |
| .2 | .2 | .1 | .1 | .2 | .2 | .2 | .3 | .2 | .2 | .2 | .2 | .2 | .2 | .2 | .3 | .2 | .2 | .1 | .2 | .2 | .3 | .3 | .3 | .3 | .3 | .2 | .2 | .2 | .2 | .3 | .2 | .3 | .2 | .4 | .2 |
| .2 | .2 | .2 | .2 | .2 | .2 | .3 | .3 | .3 | .3 | .3 | .3 | .3 | .2 | .2 | .2 | .2 | .1 | .0 | .1 | .0 | .2 | .2 | .2 | .3 | .3 | .3 | .3 | .3 | .3 | .3 | .2 | .2 | .1 | .3 | .2 |
| .2 | .4 | .3 | .3 | .3 | .2 | .3 | .5 | .4 | .4 | .4 | .4 | .4 | .3 | .3 | .3 | .3 | .2 | .1 | .2 | .1 | .2 | .2 | .3 | .3 | .4 | .4 | .4 | .4 | .4 | .4 | .4 | .4 | .2 | .2 | .2 |
| .6 | .6 | .5 | .4 | .4 | .3 | .4 | .5 | .5 | .5 | .5 | .4 | .4 | .3 | .4 | .4 | .4 | .3 | .3 | .3 | .3 | .3 | .3 | .4 | .4 | .5 | .5 | .6 | .5 | .6 | .5 | .5 | .5 | .5 | .5 | .7 |
| .5 | .5 | .4 | .4 | .4 | .4 | .4 | .5 | .5 | .5 | .5 | .4 | .4 | .3 | .3 | .4 | .4 | .3 | .5 | .4 | .5 | .4 | .4 | .5 | .5 | .6 | .7 | .7 | .6 | .5 | .4 | .5 | .5 | .5 | .5 | .6 |
| .2 | .3 | .4 | .3 | .3 | .3 | .4 | .3 | .3 | .3 | .3 | .3 | .2 | .2 | .2 | .2 | .3 | .4 | .5 | .5 | .5 | .5 | .4 | .4 | .4 | .4 | .5 | .6 | .5 | .4 | .3 | .4 | .4 | .3 | .2 | .3 |
| .2 | .3 | .3 | .3 | .3 | .3 | .2 | .1 | .1 | .1 | .2 | .2 | .2 | .1 | .2 | .2 | .2 | .2 | .2 | .2 | .3 | .3 | .3 | .2 | .3 | .3 | .2 | .2 | .2 | .2 | .2 | .3 | .2 | .2 | .1 | .1 |
| .1 | .1 | .1 | .1 | .1 | .1 | .1 | .0 | .0 | .0 | .0 | .0 | .0 | .1 | .1 | .0 | -.1 | -.2 | -.1 | -.1 | .0 | .2 | .3 | .2 | .1 | .1 | .2 | .4 | .3 | .3 | .3 | .2 | .2 | .1 | .0 | .0 |
| .2 | .2 | .2 | .2 | .2 | .2 | .2 | .2 | .2 | .1 | .2 | .2 | .2 | .2 | .2 | .1 | .0 | -.1 | -.1 | .0 | .0 | .1 | .2 | .4 | .5 | .5 | .4 | .4 | .3 | .3 | .3 | .3 | .2 | .3 | .2 | .2 |

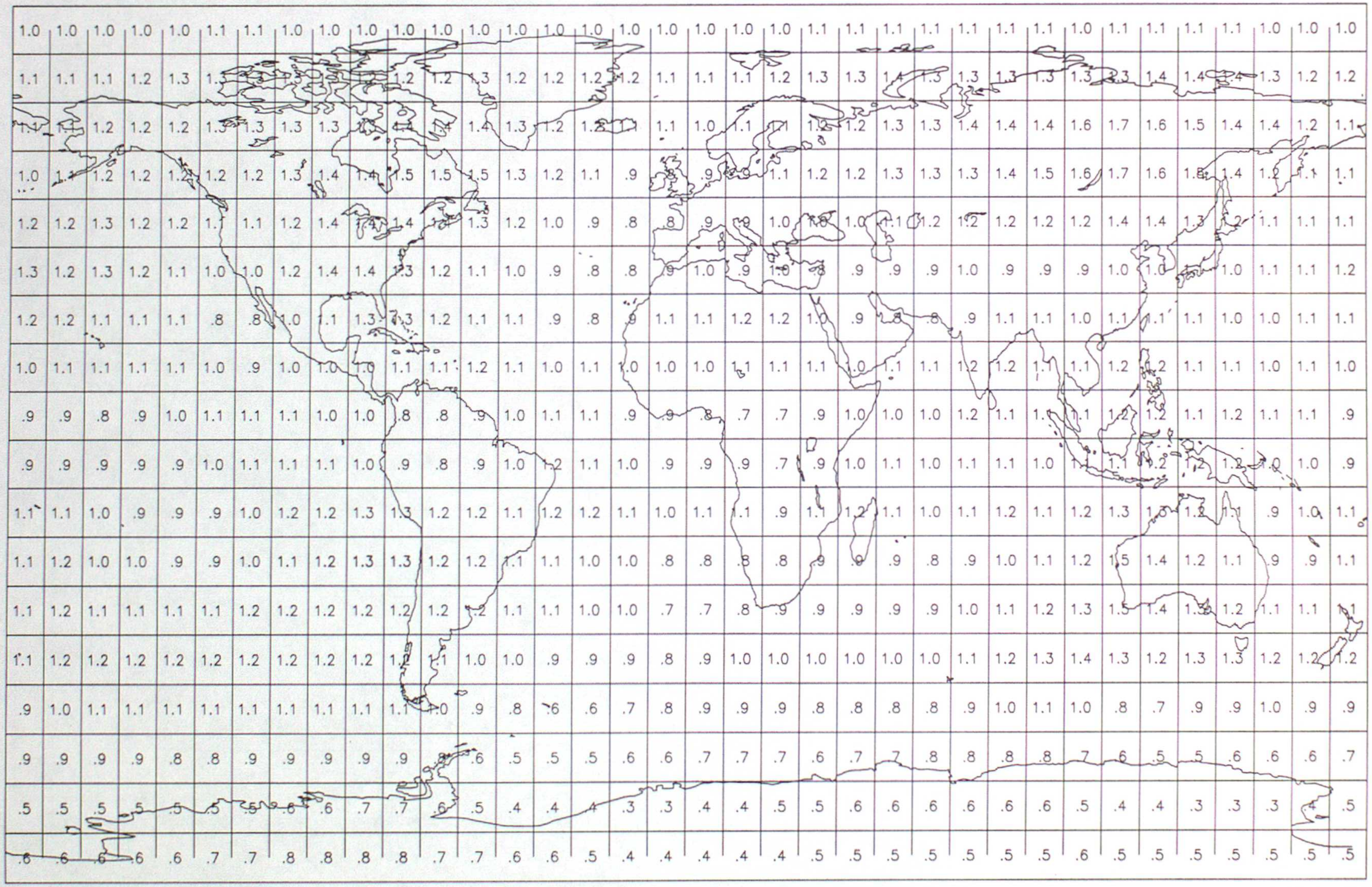
ATOVS : SD O-B BRIGHTNESS TEMPERATURE DIFFERENCES(DEG C)
AUGUST 2000 : AMSUA-7 channel (300 hPa)
NOAA-15, USING ALL OBSERVATIONS

FIGURE 37


.3 .3 .3 .3 .3 .4 .3 .4 .4 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3
.5 .5 .5 .5 .5 .5 .4 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .5 .5 .5 .4 .4 .4 .4 .4 .4 .4 .5 .5 .5 .5
.6 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .6
.5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .6 .6 .5 .5 .5 .4 .5 .5
.5 .5 .5 .5 .5 .5 .5 .5 .6 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .6 .5 .5 .5 .5 .5 .5 .5
.5 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .6 .5 .6 .5 .5 .5 .5 .5
.5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .5 .5 .5 .5 .5 .6 .5 .5 .5 .5 .5 .4 .5 .5
.6 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .6 .5 .5 .5 .5 .5 .5 .5 .5 .5 .6 .5 .5 .5 .5 .5 .5 .5 .5
.5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .6 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5
.5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .6 .4 .5 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5
.5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .5 .6 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5
.5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .5 .6 .5 .4 .4 .5 .5 .5 .5 .5 .5 .5 .4 .5 .5
.5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .6 .5 .5 .5 .5 .4 .5 .5 .5 .5 .4 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .4 .5
.5 .6 .6 .5 .5 .5 .5 .5 .5 .6 .6 .6 .6 .5 .5 .6 .6 .5 .6 .6 .5 .5 .5 .5 .5 .6 .6 .6 .6 .6 .6 .6 .5 .5 .5 .5
.5 .6 .6 .5 .5 .5 .6 .6 .5 .6 .6 .7 .6 .5 .5 .6 .5 .6 .7 .6 .6 .6 .6 .6 .6 .7 .7 .7 .6 .6 .7 .7 .6 .5 .5 .5
.5 .6 .6 .5 .5 .5 .5 .5 .5 .5 .5 .6 .5 .5 .5 .5 .5 .5 .6 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .6 .6 .6 .6 .6 .5 .5
.4 .5 .5 .5 .5 .4 .4 .4 .5 .5 .5 .5 .5 .4 .5 .5 .4 .4 .4 .4 .5 .5 .5 .4 .4 .4 .5 .5 .4 .4 .5 .4 .4 .4 .4 .4
.4 .4 .5 .5 .5 .5 .5 .4 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .4 .4 .4 .4 .4 .4 .5 .5 .4 .4 .4 .5 .5 .4 .4 .4 .4

ATOVS : MEAN O-B BRIGHTNESS TEMPERATURE DIFFERENCES (DEG C)
AUGUST 2000 : AMSUA-9 Channel (100 hPa)
NOAA-15, USING ALL OBSERVATIONS

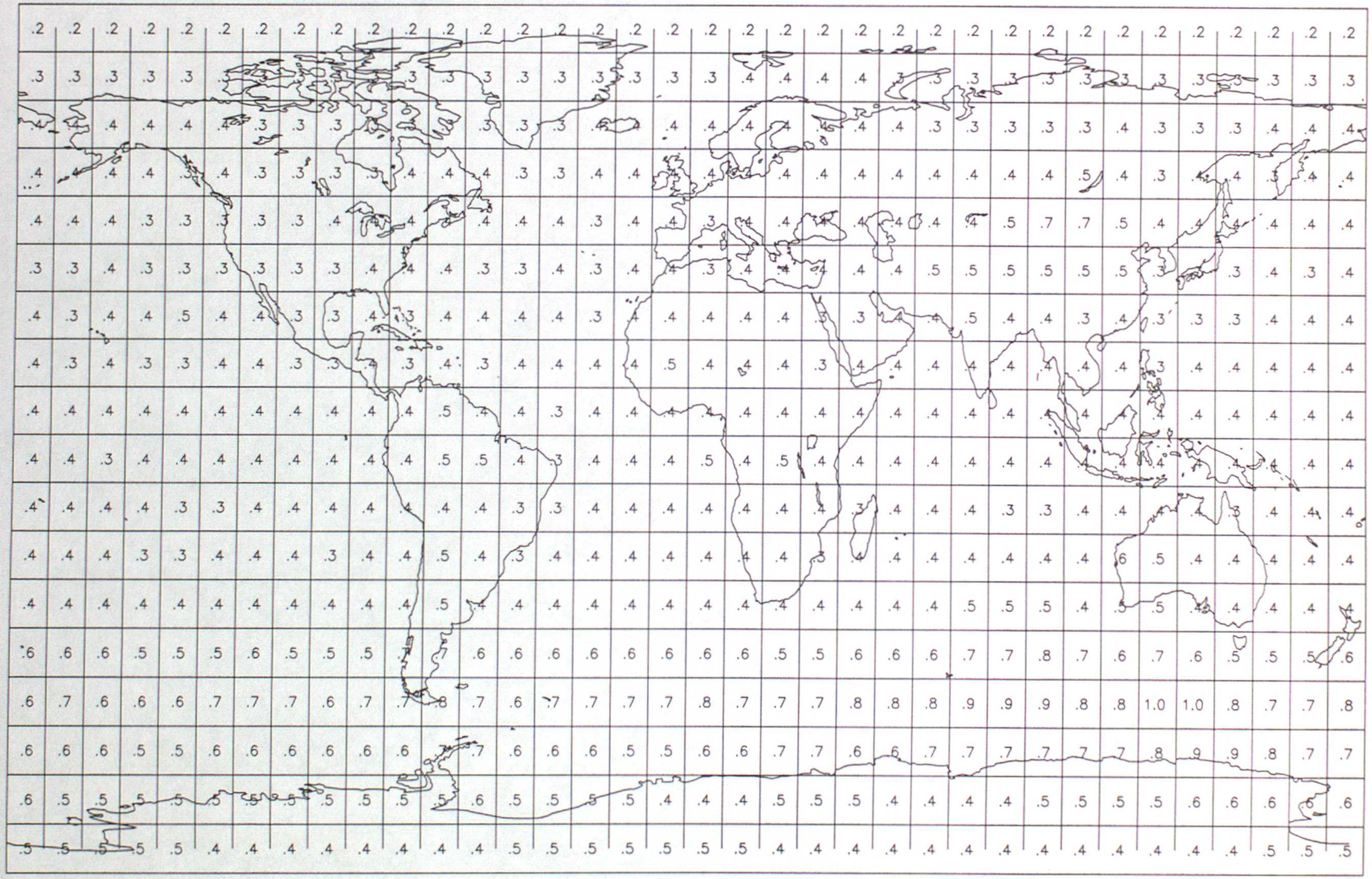
FIGURE 38



| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.1 | 1.1 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.0 | 1.1 | 1.1 | 1.1 | 1.1 | 1.0 | 1.0 | 1.0 |
| 1.1 | 1.1 | 1.1 | 1.2 | 1.3 | 1.3 | 1.3 | 1.3 | [illegible] | [illegible] | 1.2 | 1.2 | 1.3 | 1.2 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 | 1.2 | 1.3 | 1.3 | 1.4 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.4 | 1.4 | 1.4 | 1.3 | 1.2 | 1.2 |
| 1.1 | 1.1 | 1.2 | 1.2 | 1.2 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.4 | 1.4 | 1.4 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 | 1.0 | 1.1 | 1.1 | 1.2 | 1.2 | 1.3 | 1.3 | 1.4 | 1.4 | 1.4 | 1.6 | 1.7 | 1.6 | 1.5 | 1.4 | 1.4 | 1.2 | 1.1 |
| 1.0 | 1.1 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.3 | 1.4 | 1.4 | 1.5 | 1.5 | 1.5 | 1.3 | 1.2 | 1.1 | .9 | .8 | .9 | .9 | 1.1 | 1.2 | 1.2 | 1.3 | 1.3 | 1.3 | 1.4 | 1.5 | 1.6 | 1.7 | 1.6 | 1.8 | 1.4 | 1.2 | 1.1 | 1.1 |
| 1.2 | 1.2 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 | 1.2 | 1.4 | 1.4 | 1.4 | [illegible] | 1.3 | 1.2 | 1.0 | .9 | .8 | .8 | .9 | .9 | 1.0 | 1.0 | 1.0 | 1.1 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.4 | 1.4 | 1.3 | 1.2 | 1.1 | 1.1 | 1.1 |
| 1.3 | 1.2 | 1.3 | 1.2 | 1.1 | 1.0 | 1.0 | 1.2 | 1.4 | 1.4 | 1.3 | 1.2 | 1.1 | 1.0 | .9 | .8 | .8 | .9 | 1.0 | .9 | 1.0 | .8 | .9 | .9 | .9 | 1.0 | .9 | .9 | .9 | 1.0 | 1.0 | [illegible] | 1.0 | 1.1 | 1.1 | 1.2 |
| 1.2 | 1.2 | 1.1 | 1.1 | 1.1 | .8 | .8 | 1.0 | 1.1 | 1.3 | 1.3 | 1.2 | 1.1 | 1.1 | .9 | .8 | .9 | 1.1 | 1.1 | 1.2 | 1.2 | 1.0 | .9 | .8 | .8 | .9 | 1.1 | 1.1 | 1.0 | 1.1 | 1.1 | 1.1 | 1.0 | 1.0 | 1.1 | 1.1 |
| 1.0 | 1.1 | 1.1 | 1.1 | 1.1 | 1.0 | .9 | 1.0 | 1.0 | 1.0 | 1.1 | 1.1 | 1.2 | 1.1 | 1.0 | 1.1 | 1.0 | 1.0 | 1.0 | 1.1 | 1.1 | 1.1 | 1.0 | 1.1 | 1.1 | 1.2 | 1.2 | 1.1 | 1.1 | 1.2 | 1.2 | 1.1 | 1.1 | 1.0 | 1.1 | 1.0 |
| .9 | .9 | .8 | .9 | 1.0 | 1.1 | 1.1 | 1.1 | 1.0 | 1.0 | .8 | .8 | .9 | 1.0 | 1.1 | 1.1 | .9 | .9 | .8 | .7 | .7 | .9 | 1.0 | 1.0 | 1.0 | 1.2 | 1.1 | 1.1 | 1.1 | 1.2 | 1.2 | 1.1 | 1.2 | 1.1 | 1.1 | .9 |
| .9 | .9 | .9 | .9 | .9 | 1.0 | 1.1 | 1.1 | 1.1 | 1.0 | .9 | .8 | .9 | 1.0 | 1.2 | 1.1 | 1.0 | .9 | .9 | .9 | .7 | .9 | 1.0 | 1.1 | 1.0 | 1.1 | 1.1 | 1.0 | 1.1 | 1.1 | 1.2 | 1.2 | 1.2 | 1.0 | 1.0 | .9 |
| 1.1 | 1.1 | 1.0 | .9 | .9 | .9 | 1.0 | 1.2 | 1.2 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.2 | 1.2 | 1.1 | 1.0 | 1.1 | 1.1 | .9 | 1.1 | 1.2 | 1.1 | 1.0 | 1.1 | 1.2 | 1.1 | 1.2 | 1.3 | 1.3 | 1.2 | 1.1 | .9 | 1.0 | 1.1 |
| 1.1 | 1.2 | 1.0 | 1.0 | .9 | .9 | 1.0 | 1.1 | 1.2 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 | 1.0 | 1.0 | .8 | .8 | .8 | .8 | .9 | .9 | .9 | .8 | .9 | 1.0 | 1.1 | 1.2 | 1.5 | 1.4 | 1.2 | 1.1 | .9 | .9 | 1.1 |
| 1.1 | 1.2 | 1.1 | 1.1 | 1.1 | 1.1 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.0 | 1.0 | .7 | .7 | .8 | .9 | .9 | .9 | .9 | .9 | 1.0 | 1.1 | 1.2 | 1.3 | 1.5 | 1.4 | 1.3 | 1.2 | 1.1 | 1.1 | 1.1 |
| 1.1 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.1 | 1.0 | 1.0 | 1.0 | .9 | .9 | .9 | .8 | .9 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.1 | 1.2 | 1.3 | 1.4 | 1.3 | 1.2 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 |
| .9 | 1.0 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.0 | .9 | .8 | .6 | .6 | .7 | .8 | .9 | .9 | .9 | .8 | .8 | .8 | .8 | .9 | 1.0 | 1.1 | 1.0 | .8 | .7 | .9 | .9 | 1.0 | .9 | .9 |
| .9 | .9 | .9 | .9 | .8 | .8 | .9 | .9 | .9 | .9 | .9 | .8 | .6 | .5 | .5 | .5 | .6 | .6 | .7 | .7 | .7 | .6 | .7 | .7 | .8 | .8 | .8 | .8 | .7 | .6 | .5 | .5 | .6 | .6 | .6 | .7 |
| .5 | .5 | .5 | .5 | .5 | .5 | .5 | .6 | .6 | .7 | .7 | .6 | .5 | .4 | .4 | .4 | .3 | .3 | .4 | .4 | .5 | .5 | .6 | .6 | .6 | .6 | .6 | .6 | .5 | .4 | .4 | .3 | .3 | .3 | .4 | .5 |
| .6 | .6 | .6 | .6 | .6 | .7 | .7 | .8 | .8 | .8 | .8 | .7 | .7 | .6 | .6 | .5 | .4 | .4 | .4 | .4 | .4 | .5 | .5 | .5 | .5 | .5 | .5 | .5 | .6 | .5 | .5 | .5 | .5 | .5 | .5 | .5 |

ATOVS : SD O-B BRIGHTNESS TEMPERATURE DIFFERENCES(DEG C)
AUGUST 2000 : AMSUA-9 channel (100 hPa)
NOAA-15, USING ALL OBSERVATIONS

FIGURE 39



## TABLE 8

## MONTHLY MONITORING OF MARINE SURFACE OBSERVATIONS (COSNA)
## DATA TYPE:- DRIFTER
## MONITORING CENTRE: BRACKNELL
## MONTH: August 2000

**Monitoring procedures**

| | | |
|---|---|---|
| **Period** | | :One calendar month. |
| **Data monitored** | | :Reports from each unique identifier for drifting buoy. |
| **Area monitored** | | :10°N - 80°N, 85°W - 0°W |
| **Standard of comparison** | | :Background field from UKMO global model. |
| **Position** | | :Average latitude and longitude for period. |
| **Observation times** | | :All hours combined. |
| **Elements monitored** | | :Mean sea-level pressure (hPa)<br>:Wind speed (m $s^{-1}$)<br>:Wind direction (degrees) |
| **Parameters monitored** | :NOBS | :Number of observations received excluding duplicates. |
| | :NGE | :Number of observations with gross errors. |
| | :PGE | :Percentage of observations with gross errors. |
| | :SD | :SD of difference of observations from background values excluding those with gross errors. |
| | :BIAS | :Mean difference of observations from background values excluding those with gross errors.<br>**N.B. A positive bias indicates the observation is veered to the background** |
| | :RMS | :Root Mean Square difference of observations from background values excluding those with gross errors |
| **GROSS ERROR LIMITS** | :15 hPa (pressure)<br>:25 m $s^{-1}$ (Vector Wind) | |

**N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m $s^{-1}$**

| IDENTIFIER | LAT. | LONG. | HOUR | ELEM | LEVEL | NOBS | NGE | PGE | SD | BIAS | RMS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN SEA LEVEL PRESSURE | | | | | | | | | | | |
| 41501 | 27.1 | -69.8 | ALL | P | SUR | 245 | 0 | 0 | 0.5 | 0.4 | 0.7 |
| 41521 | 34.8 | -63.9 | ALL | P | SUR | 307 | 0 | 0 | 0.7 | 0.5 | 0.8 |
| 41523 | 24.6 | -63.4 | ALL | P | SUR | 229 | 1 | 0 | 0.6 | 0.4 | 0.7 |
| 41524 | 18.2 | -72.1 | ALL | P | SUR | 186 | 0 | 0 | 0.6 | 1.4 | 1.5 |
| 41571 | 27.8 | -49.9 | ALL | P | SUR | 276 | 0 | 0 | 0.6 | 0.6 | 0.8 |
| 41572 | 22.1 | -44.8 | ALL | P | SUR | 519 | 0 | 0 | 0.6 | 0.1 | 0.6 |
| 41590 | 20.2 | -49.7 | ALL | P | SUR | 537 | 0 | 0 | 0.7 | 0.6 | 0.9 |
| 41594 | 12.5 | -57.9 | ALL | P | SUR | 546 | 0 | 0 | 0.4 | 0.7 | 0.8 |
| 41595 | 14.9 | -62.0 | ALL | P | SUR | 553 | 0 | 0 | 0.5 | 0.8 | 1.0 |
| 41611 | 13.3 | -46.9 | ALL | P | SUR | 532 | 0 | 0 | 0.6 | 0.3 | 0.7 |
| 41613 | 11.2 | -36.3 | ALL | P | SUR | 491 | 0 | 0 | 0.7 | 0.1 | 0.7 |
| 41615 | 16.7 | -43.5 | ALL | P | SUR | 496 | 0 | 0 | 0.7 | 0.2 | 0.7 |
| 41616 | 18.3 | -45.9 | ALL | P | SUR | 539 | 0 | 0 | 0.9 | 0.2 | 1.0 |
| 41630 | 21.1 | -54.3 | ALL | P | SUR | 360 | 0 | 0 | 0.6 | 0.7 | 0.9 |
| 41644 | 30.7 | -37.9 | ALL | P | SUR | 359 | 0 | 0 | 0.7 | 0.3 | 0.8 |
| 44607 | 53.4 | -27.9 | ALL | P | SUR | 561 | 0 | 0 | 0.8 | -1.1 | 1.4 |
| 44608 | 29.1 | -17.9 | ALL | P | SUR | 1427 | 0 | 0 | 0.6 | 0.3 | 0.7 |
| 44610 | 52.9 | -33.4 | ALL | P | SUR | 1605 | 0 | 0 | 0.9 | -0.4 | 0.9 |
| 44611 | 46.9 | -22.0 | ALL | P | SUR | 583 | 0 | 0 | 0.6 | 0.2 | 0.6 |
| 44612 | 36.1 | -40.2 | ALL | P | SUR | 583 | 0 | 0 | 0.7 | 0.2 | 0.8 |
| 44613 | 25.7 | -52.3 | ALL | P | SUR | 697 | 0 | 0 | 0.7 | 0.4 | 0.8 |
| 44615 | 32.8 | -42.9 | ALL | P | SUR | 561 | 0 | 0 | 0.8 | 0.0 | 0.8 |
| 44617 | 48.5 | -25.6 | ALL | P | SUR | 566 | 0 | 0 | 0.7 | 0.0 | 0.7 |
| 44620 | 32.1 | -43.2 | ALL | P | SUR | 567 | 0 | 0 | 0.8 | 0.1 | 0.9 |
| 44622 | 51.8 | -35.9 | ALL | P | SUR | 630 | 0 | 0 | 0.8 | -0.3 | 0.9 |
| 44623 | 43.6 | -29.6 | ALL | P | SUR | 558 | 0 | 0 | 0.6 | -0.1 | 0.6 |
| 44626 | 44.0 | -13.7 | ALL | P | SUR | 1368 | 13 | 1 | 0.8 | 0.0 | 0.8 |
| 44627 | 38.8 | -25.0 | ALL | P | SUR | 1285 | 6 | 0 | 1.0 | 0.0 | 1.0 |
| 44628 | 38.8 | -33.2 | ALL | P | SUR | 1202 | 12 | 1 | 0.6 | 0.0 | 0.6 |
| 44630 | 52.8 | -12.0 | ALL | P | SUR | 1720 | 8 | 0 | 0.8 | -0.1 | 0.8 |
| 44723 | 47.3 | -28.0 | ALL | P | SUR | 576 | 0 | 0 | 0.8 | -0.8 | 1.1 |
| 44724 | 45.3 | -31.8 | ALL | P | SUR | 556 | 0 | 0 | 0.7 | -0.4 | 0.8 |
| 44725 | 44.8 | -43.6 | ALL | P | SUR | 219 | 0 | 0 | 1.6 | -0.5 | 1.6 |
| 44726 | 27.7 | -56.0 | ALL | P | SUR | 553 | 0 | 0 | 1.0 | 0.3 | 1.0 |
| 44727 | 30.8 | -37.1 | ALL | P | SUR | 228 | 0 | 0 | 0.6 | -0.1 | 0.6 |
| 44729 | 50.4 | -38.0 | ALL | P | SUR | 582 | 0 | 0 | 1.0 | -0.3 | 1.0 |
| 44730 | 52.3 | -31.2 | ALL | P | SUR | 626 | 0 | 0 | 0.8 | 0.0 | 0.8 |
| 44741 | 62.8 | -33.3 | ALL | P | SUR | 596 | 0 | 0 | 0.9 | 0.3 | 0.9 |
| 44743 | 48.1 | -28.8 | ALL | P | SUR | 1135 | 7 | 1 | 0.9 | 0.1 | 0.9 |
| 44760 | 54.8 | -32.1 | ALL | P | SUR | 556 | 5 | 1 | 1.1 | -0.6 | 1.3 |
| 44761 | 53.0 | -45.2 | ALL | P | SUR | 612 | 0 | 0 | 0.8 | -0.6 | 1.0 |
| 44762 | 48.6 | -41.4 | ALL | P | SUR | 441 | 0 | 0 | 0.7 | 0.2 | 0.8 |
| 44763 | 42.2 | -44.5 | ALL | P | SUR | 351 | 0 | 0 | 1.3 | 0.5 | 1.4 |
| 44764 | 43.3 | -40.7 | ALL | P | SUR | 435 | 0 | 0 | 0.8 | 0.1 | 0.8 |
| 44765 | 33.6 | -57.4 | ALL | P | SUR | 575 | 1 | 0 | 1.2 | 0.4 | 1.3 |
| 44767 | 54.2 | -46.1 | ALL | P | SUR | 411 | 0 | 0 | 0.9 | -0.4 | 0.9 |
| 44768 | 57.1 | -45.1 | ALL | P | SUR | 446 | 0 | 0 | 1.0 | -0.5 | 1.1 |
| 44769 | 57.7 | -52.1 | ALL | P | SUR | 131 | 0 | 0 | 0.7 | 0.0 | 0.7 |
| 44770 | 54.1 | -51.4 | ALL | P | SUR | 448 | 0 | 0 | 0.7 | -0.3 | 0.8 |
| 44771 | 56.0 | -41.0 | ALL | P | SUR | 520 | 0 | 0 | 0.8 | -0.1 | 0.8 |
| 44772 | 48.6 | -45.1 | ALL | P | SUR | 1321 | 5 | 0 | 0.8 | -0.5 | 0.9 |
| 44773 | 48.1 | -30.8 | ALL | P | SUR | 227 | 0 | 0 | 1.0 | -0.1 | 1.0 |
| 44811 | 41.1 | -66.6 | ALL | P | SUR | 1 | 0 | 0 | 0.0 | -0.1 | 0.1 |
| 45808 | 44.3 | -82.4 | ALL | P | SUR | 1 | 0 | 0 | 0.0 | 0.0 | 0.0 |
| 48534 | 38.8 | -77.0 | ALL | P | SUR | 604 | 33 | 5 | 7.9 | 0.6 | 7.9 |
| 48535 | 38.8 | -77.0 | ALL | P | SUR | 318 | 64 | 20 | 4.4 | -9.2 | 10.2 |
| 48538 | 38.8 | -77.0 | ALL | P | SUR | 485 | 40 | 8 | 7.1 | 0.0 | 7.1 |
| 62507 | 34.8 | -26.8 | ALL | P | SUR | 1122 | 8 | 1 | 0.7 | -0.3 | 0.8 |
| 62508 | 39.9 | -16.1 | ALL | P | SUR | 727 | 0 | 0 | 1.5 | -0.6 | 1.6 |
| 62509 | 45.0 | -7.1 | ALL | P | SUR | 1139 | 0 | 0 | 0.6 | -0.3 | 0.6 |

| IDENTIFIER | LAT. | LONG. | HOUR | ELEM | LEVEL | NOBS | NGE | PGE | SD | BIAS | RMS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN SEA LEVEL PRESSURE | | | | | | | | | | | |
| 62512 | 40.5 | -23.3 | ALL | P | SUR | 372 | 0 | 0 | 0.7 | 0.0 | 0.7 |
| 62513 | 45.0 | -25.6 | ALL | P | SUR | 370 | 0 | 0 | 0.6 | -1.1 | 1.3 |
| 62514 | 50.2 | -20.9 | ALL | P | SUR | 762 | 0 | 0 | 1.0 | -0.4 | 1.0 |
| 62515 | 47.3 | -15.6 | ALL | P | SUR | 550 | 392 | 71 | 4.3 | 7.0 | 8.3 |
| 62516 | 47.1 | -25.8 | ALL | P | SUR | 639 | 0 | 0 | 0.7 | -0.5 | 0.9 |
| 62520 | 33.6 | -32.1 | ALL | P | SUR | 1118 | 5 | 0 | 0.7 | -0.4 | 0.8 |
| 62596 | 61.4 | -21.1 | ALL | P | SUR | 600 | 0 | 0 | 0.7 | -0.3 | 0.8 |
| 62597 | 50.7 | -5.3 | ALL | P | SUR | 1271 | 9 | 1 | 0.8 | -0.1 | 0.8 |
| 62675 | 35.8 | -9.8 | ALL | P | SUR | 27 | 0 | 0 | 0.8 | -0.2 | 0.8 |
| 62701 | 50.6 | -2.7 | ALL | P | SUR | 1 | 0 | 0 | 0.0 | -0.9 | 0.9 |
| 62705 | 54.9 | -12.6 | ALL | P | SUR | 1 | 0 | 0 | 0.0 | -0.3 | 0.3 |
| 62706 | 57.0 | -9.9 | ALL | P | SUR | 1 | 0 | 0 | 0.0 | -2.6 | 2.6 |
| 62725 | 26.6 | -18.4 | ALL | P | SUR | 84 | 0 | 0 | 1.0 | -0.3 | 1.0 |
| 62743 | 61.8 | -2.2 | ALL | P | SUR | 1 | 0 | 0 | 0.0 | 1.6 | 1.6 |
| 62761 | 34.1 | -9.9 | ALL | P | SUR | 229 | 0 | 0 | 0.7 | -0.3 | 0.8 |
| 62763 | 35.5 | -10.1 | ALL | P | SUR | 76 | 0 | 0 | 1.6 | -0.6 | 1.7 |
| 62889 | 48.7 | -12.4 | ALL | P | SUR | 1 | 0 | 0 | 0.0 | 0.0 | 0.0 |
| 639140 | 46.5 | -48.5 | ALL | P | SUR | 1 | 0 | 0 | 0.0 | -0.4 | 0.4 |
| 64517 | 59.6 | -24.2 | ALL | P | SUR | 1214 | 0 | 0 | 0.7 | -0.5 | 0.8 |
| 64519 | 66.2 | -23.5 | ALL | P | SUR | 748 | 0 | 0 | 0.9 | -0.6 | 1.1 |
| 64520 | 66.1 | -24.6 | ALL | P | SUR | 740 | 0 | 0 | 2.1 | 0.7 | 2.2 |
| 64521 | 66.3 | -22.0 | ALL | P | SUR | 619 | 0 | 0 | 0.9 | -0.3 | 0.9 |
| 64546 | 50.1 | -21.6 | ALL | P | SUR | 1312 | 4 | 0 | 1.1 | 0.5 | 1.2 |
| 64548 | 59.1 | -23.8 | ALL | P | SUR | 1337 | 8 | 1 | 1.1 | -0.5 | 1.3 |
| 64698 | 61.5 | -27.7 | ALL | P | SUR | 1104 | 0 | 0 | 0.7 | -0.5 | 0.9 |
| 64699 | 59.5 | -54.7 | ALL | P | SUR | 1163 | 0 | 0 | 0.8 | -0.6 | 1.0 |
| 65593 | 61.3 | -31.0 | ALL | P | SUR | 1738 | 1 | 0 | 0.9 | -0.5 | 1.1 |
| 65598 | 66.8 | -55.4 | ALL | P | SUR | 1436 | 3 | 0 | 1.3 | -0.6 | 1.4 |
| 65599 | 59.9 | -32.2 | ALL | P | SUR | 2216 | 5 | 0 | 0.8 | -0.2 | 0.8 |
| 65600 | 56.0 | -30.3 | ALL | P | SUR | 1675 | 3 | 0 | 1.0 | -0.8 | 1.3 |
| 65601 | 60.0 | -33.1 | ALL | P | SUR | 1401 | 12 | 1 | 1.2 | -0.5 | 1.3 |
| 65602 | 59.9 | -34.1 | ALL | P | SUR | 1468 | 7 | 0 | 1.1 | -0.6 | 1.2 |
| WIND SPEED | | | | | | | | | | | |
| 41501 | 27.1 | -69.8 | ALL | SPEED | SUR | 232 | 0 | 0 | 2.8 | 0.2 | 2.8 |
| 41521 | 34.8 | -63.9 | ALL | SPEED | SUR | 247 | 0 | 0 | 1.8 | -0.5 | 1.8 |
| 41523 | 24.6 | -63.4 | ALL | SPEED | SUR | 223 | 0 | 0 | 2.7 | 0.0 | 2.7 |
| 41571 | 27.8 | -49.9 | ALL | SPEED | SUR | 203 | 0 | 0 | 7.5 | 4.2 | 8.6 |
| 41572 | 22.1 | -44.8 | ALL | SPEED | SUR | 386 | 0 | 0 | 4.9 | -4.2 | 6.5 |
| 41590 | 20.2 | -49.7 | ALL | SPEED | SUR | 514 | 0 | 0 | 2.8 | -0.6 | 2.9 |
| 41594 | 12.5 | -57.9 | ALL | SPEED | SUR | 540 | 0 | 0 | 3.0 | 0.4 | 3.0 |
| 41611 | 13.3 | -46.9 | ALL | SPEED | SUR | 526 | 0 | 0 | 1.8 | -0.5 | 1.9 |
| 41613 | 11.2 | -36.3 | ALL | SPEED | SUR | 484 | 0 | 0 | 2.5 | 1.4 | 2.9 |
| 41615 | 16.7 | -43.5 | ALL | SPEED | SUR | 494 | 0 | 0 | 1.9 | 0.4 | 2.0 |
| 41616 | 18.3 | -45.9 | ALL | SPEED | SUR | 534 | 0 | 0 | 1.8 | 0.5 | 1.9 |
| 41630 | 21.1 | -54.3 | ALL | SPEED | SUR | 349 | 0 | 0 | 1.7 | -2.9 | 3.4 |
| 41644 | 30.7 | -37.9 | ALL | SPEED | SUR | 8 | 0 | 0 | 3.2 | -4.1 | 5.2 |
| 44607 | 53.4 | -27.9 | ALL | SPEED | SUR | 552 | 0 | 0 | 1.8 | 0.6 | 1.9 |
| 44726 | 27.7 | -56.0 | ALL | SPEED | SUR | 484 | 0 | 0 | 4.9 | -0.9 | 5.0 |
| 44743 | 48.1 | -28.8 | ALL | SPEED | SUR | 1072 | 0 | 0 | 2.0 | -0.4 | 2.1 |
| 44772 | 48.6 | -45.1 | ALL | SPEED | SUR | 1264 | 0 | 0 | 1.9 | -0.2 | 1.9 |
| 44773 | 48.1 | -30.8 | ALL | SPEED | SUR | 225 | 0 | 0 | 1.8 | -0.2 | 1.8 |
| 44811 | 41.1 | -66.6 | ALL | SPEED | SUR | 1 | 0 | 0 | 0.0 | 1.8 | 1.8 |
| 62506 | 36.4 | -26.5 | ALL | SPEED | SUR | 623 | 0 | 0 | 1.4 | -0.5 | 1.5 |
| 62508 | 39.9 | -16.1 | ALL | SPEED | SUR | 693 | 0 | 0 | 1.3 | -0.1 | 1.3 |
| 62597 | 50.7 | -5.3 | ALL | SPEED | SUR | 1158 | 0 | 0 | 1.8 | -0.9 | 2.0 |
| 62705 | 54.9 | -12.6 | ALL | SPEED | SUR | 1 | 0 | 0 | 0.0 | -0.7 | 0.7 |
| 62706 | 57.0 | -9.9 | ALL | SPEED | SUR | 1 | 0 | 0 | 0.0 | 0.3 | 0.3 |
| 62709 | 57.0 | 0.0 | ALL | SPEED | SUR | 1 | 0 | 0 | 0.0 | 1.1 | 1.1 |

```
IDENTIFIER  LAT.   LONG.   HOUR   ELEM    LEVEL NOBS   NGE   PGE      SD    BIAS     RMS

WIND SPEED

62743       61.8    -2.2   ALL    SPEED   SUR      1     0     0    0.0     0.7     0.7
62889       48.7   -12.4   ALL    SPEED   SUR      1     0     0    0.0    -1.1     1.1
639140      46.5   -48.5   ALL    SPEED   SUR      1     0     0    0.0    -2.0     2.0

IDENTIFIER  LAT.   LONG.   HOUR   ELEM    LEVEL NOBS   NGE   PGE      SD    BIAS     RMS

WIND DIRECTION

41501       27.1   -69.8   ALL    DIRN.   SUR     97     0     0   24.9    16.8    30.0
41521       34.8   -63.9   ALL    DIRN.   SUR    145     0     0   19.8    -4.3    20.3
41523       24.6   -63.4   ALL    DIRN.   SUR    127     0     0   32.1   -25.8    41.2
41571       27.8   -49.9   ALL    DIRN.   SUR     74     0     0   10.3    11.0    15.1
41572       22.1   -44.8   ALL    DIRN.   SUR     29     0     0   15.0    15.3    21.4

41590       20.2   -49.7   ALL    DIRN.   SUR    464     0     0   12.6    -0.2    12.6
41594       12.5   -57.9   ALL    DIRN.   SUR    437     0     0   17.4    -5.7    18.3
41611       13.3   -46.9   ALL    DIRN.   SUR    370     0     0   16.6     9.1    19.0
41613       11.2   -36.3   ALL    DIRN.   SUR    113     0     0   15.8   -12.2    20.0
41615       16.7   -43.5   ALL    DIRN.   SUR    475     0     0   12.8    -5.8    14.1

41616       18.3   -45.9   ALL    DIRN.   SUR    532     0     0   15.5     3.9    15.9
41630       21.1   -54.3   ALL    DIRN.   SUR    126     0     0   25.1    -5.3    25.7
44607       53.4   -27.9   ALL    DIRN.   SUR    394     0     0   16.5    -4.0    17.0
44726       27.7   -56.0   ALL    DIRN.   SUR     42     0     0   18.3   -11.5    21.6
44743       48.1   -28.8   ALL    DIRN.   SUR    727     0     0   18.2     0.5    18.2

44772       48.6   -45.1   ALL    DIRN.   SUR    570     0     0   79.4     9.0    79.9
44773       48.1   -30.8   ALL    DIRN.   SUR    158     0     0   92.8    49.0   104.9
44811       41.1   -66.6   ALL    DIRN.   SUR      1     0     0    0.0    22.4    22.4
62506       36.4   -26.5   ALL    DIRN.   SUR     71     0     0   17.5     2.6    17.7
62508       39.9   -16.1   ALL    DIRN.   SUR    362     0     0   10.8    -3.1    11.3

62597       50.7    -5.3   ALL    DIRN.   SUR    657     0     0   71.1   -14.1    72.5
62706       57.0    -9.9   ALL    DIRN.   SUR      1     0     0    0.0    10.6    10.6
62743       61.8    -2.2   ALL    DIRN.   SUR      1     0     0    0.0     8.6     8.6
62889       48.7   -12.4   ALL    DIRN.   SUR      1     0     0    0.0   -18.0    18.0
```

## TABLE 9

## MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS (COSNA)
## MONITORING CENTRE: BRACKNELL
## MONTH: August 2000

**Monitoring procedures:**

| | | |
|---|---|---|
| **Period** | | :One calendar month. |
| **Data monitored** | | :Statistics for each airline carrier. |
| **Area monitored** | | :40°N - 70°N, 60°W - 0°W. |
| **Standard of comparison** | | :Background field from UKMO global model. |
| **Observation times** | | :All hours combined. |
| **Level(s) monitored** | | :300.0 - 150.0 hPa |
| **Elements monitored** | | :TEMP in °C ; WIND in m s$^{-1}$ |
| **Parameters monitored** | :N REP. | :Number of observations received excluding duplicates. |
| | :PG | :Percentage of observations with gross errors. |
| | :PR | :Percentage of observations rejected by quality control including rejections from the duplicate check. |
| | :PC | :Percentage of observations with calm winds. |
| | :RMS | :Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind. |
| | :BIAS | :Mean difference of observations from background values excluding those with gross errors in Temperature & vector wind. |

**GROSS ERROR LIMITS** :10.0 °C ; 60 m s$^{-1}$ Vector Wind

**SELECTION CRITERIA** :N REP ≥ 20

**NB:** All American ACARS data are grouped together and statistics are shown at the bottom of the table as "US ACARS". All ADS reports are similarly grouped together.

| | TEMPERATURE | | | | | WIND | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| IDENT. | N.REP. | PG | PR | RMS | BIAS | N.REP. | PG | PR | PC | RMS | BIAS |
| AAL | 3234 | 0 | 5 | 1.5 | 0.2 | 3241 | 0 | 5 | 0 | 7.5 | 0.7 |
| ACA | 1561 | 0 | 2 | 1.7 | 0.1 | 1588 | 0 | 3 | 0 | 6.7 | 0.8 |
| AEA | 342 | 1 | 3 | 1.5 | 0.2 | 341 | 1 | 5 | 0 | 7.7 | 0.6 |
| AEL | 296 | 0 | 11 | 1.7 | -0.3 | 300 | 1 | 12 | 0 | 6.4 | 0.6 |
| AEY | 39 | 0 | 3 | 1.8 | 1.1 | 41 | 0 | 2 | 0 | 5.2 | 0.2 |
| AFL | 379 | 0 | 3 | 2.0 | 0.4 | 375 | 0 | 3 | 0 | 7.4 | 0.7 |
| AFR | 1068 | 0 | 5 | 1.7 | 0.0 | 1084 | 0 | 6 | 0 | 7.0 | 0.7 |
| AIH | 178 | 1 | 3 | 1.5 | 0.0 | 175 | 0 | 6 | 0 | 8.5 | 1.2 |
| AJM | 143 | 0 | 1 | 1.3 | -0.2 | 147 | 1 | 4 | 0 | 8.6 | 0.8 |
| AMM | 51 | 2 | 8 | 1.4 | 0.8 | 51 | 0 | 8 | 0 | 6.3 | 0.2 |
| AMT | 26 | 0 | 8 | 1.5 | 0.0 | 26 | 0 | 8 | 0 | 8.1 | 1.5 |
| AMX | 168 | 2 | 7 | 2.1 | 0.3 | 174 | 1 | 6 | 0 | 10.3 | 1.0 |
| ANZ | 180 | 1 | 47 | 1.8 | -0.8 | 179 | 0 | 45 | 0 | 7.1 | 0.2 |
| AOM | 432 | 0 | 5 | 1.6 | 0.5 | 438 | 0 | 5 | 0 | 6.7 | 0.0 |
| AVA | 183 | 0 | 1 | 1.8 | 0.5 | 187 | 0 | 3 | 0 | 8.8 | 0.4 |
| AZA | 632 | 0 | 5 | 2.2 | 0.6 | 636 | 0 | 5 | 0 | 8.3 | 1.0 |
| BAL | 159 | 0 | 9 | 1.5 | -0.6 | 160 | 0 | 10 | 0 | 7.0 | 0.4 |
| BAW | 1310 | 0 | 5 | 1.9 | 0.2 | 1300 | 0 | 6 | 0 | 7.4 | 1.0 |
| BBB | 21 | 0 | 0 | 1.7 | -0.7 | 20 | 0 | 0 | 0 | 6.3 | 0.2 |
| BLX | 22 | 0 | 5 | 1.5 | -0.7 | 23 | 0 | 4 | 0 | 5.6 | 0.4 |
| BWA | 68 | 0 | 10 | 1.9 | 1.2 | 68 | 1 | 18 | 0 | 11.3 | 0.2 |
| CDN | 631 | 0 | 2 | 1.9 | 0.2 | 633 | 0 | 2 | 0 | 6.1 | 1.0 |
| CFG | 524 | 1 | 2 | 1.7 | -1.0 | 524 | 0 | 2 | 0 | 6.1 | 0.4 |
| CLX | 272 | 0 | 2 | 1.9 | -0.4 | 271 | 1 | 4 | 0 | 7.5 | 0.4 |
| CMM | 487 | 0 | 2 | 1.7 | 0.0 | 488 | 0 | 1 | 0 | 5.6 | 0.7 |
| COA | 686 | 1 | 5 | 1.5 | 0.0 | 685 | 0 | 10 | 0 | 11.6 | 2.0 |
| CRL | 352 | 1 | 3 | 1.8 | 0.6 | 357 | 0 | 3 | 0 | 6.8 | 0.8 |
| CTB | 129 | 0 | 1 | 1.2 | 0.0 | 127 | 0 | 2 | 0 | 5.9 | 0.5 |
| CUB | 137 | 0 | 1 | 1.6 | 1.1 | 138 | 0 | 1 | 0 | 6.7 | 0.3 |
| DAL | 1819 | 0 | 16 | 1.6 | -0.3 | 1875 | 0 | 16 | 0 | 7.3 | 0.7 |
| DBY | 323 | 1 | 4 | 1.5 | -0.5 | 335 | 0 | 4 | 0 | 7.6 | 1.2 |
| DCS | 45 | 0 | 0 | 1.5 | 0.3 | 44 | 0 | 0 | 0 | 4.3 | -0.6 |
| DLH | 1333 | 0 | 4 | 1.6 | 0.0 | 1330 | 0 | 5 | 0 | 6.8 | 0.8 |
| EEZ | 134 | 1 | 100 | 1.4 | 0.7 | 138 | 1 | 13 | 0 | 6.1 | 0.8 |
| EIN | 45 | 2 | 4 | 1.6 | 0.4 | 46 | 0 | 4 | 0 | 6.9 | 0.2 |
| ELY | 199 | 0 | 4 | 1.6 | 0.0 | 204 | 0 | 3 | 0 | 6.9 | 0.8 |
| ETH | 44 | 0 | 18 | 1.4 | 0.1 | 46 | 0 | 17 | 0 | 5.7 | 1.6 |
| EWW | 83 | 1 | 5 | 1.4 | 0.0 | 83 | 0 | 2 | 0 | 6.3 | 0.3 |
| FDX | 700 | 0 | 4 | 1.5 | 0.3 | 728 | 0 | 5 | 0 | 7.0 | 0.8 |
| FIN | 428 | 0 | 2 | 1.7 | 0.3 | 420 | 0 | 3 | 0 | 7.2 | 0.8 |
| GAF | 109 | 1 | 5 | 1.4 | -0.5 | 109 | 0 | 7 | 0 | 9.8 | 1.3 |
| GCO | 143 | 0 | 6 | 1.7 | 0.2 | 146 | 0 | 100 | 0 | 17.4 | 4.9 |
| GRL | 77 | 0 | 3 | 1.8 | -0.1 | 75 | 0 | 1 | 0 | 5.9 | 0.4 |
| GTI | 148 | 0 | 6 | 1.6 | -0.3 | 149 | 0 | 10 | 0 | 8.7 | 0.2 |
| HLF | 59 | 0 | 2 | 1.2 | -0.2 | 60 | 0 | 2 | 0 | 5.9 | 0.8 |
| HZM | 25 | 0 | 4 | 4.5 | 4.2 | 25 | 0 | 4 | 0 | 10.0 | 2.6 |
| IBE | 1236 | 1 | 11 | 1.7 | 0.6 | 1217 | 0 | 12 | 0 | 8.4 | 0.8 |
| ICE | 1221 | 0 | 2 | 1.6 | 0.2 | 1203 | 0 | 4 | 0 | 7.3 | 0.9 |
| IWD | 41 | 0 | 0 | 0.8 | -0.4 | 40 | 0 | 3 | 0 | 10.1 | 1.8 |
| JKK | 267 | 1 | 7 | 1.5 | 0.0 | 248 | 0 | 8 | 0 | 7.3 | 0.6 |
| JMC | 97 | 0 | 9 | 1.5 | 0.9 | 99 | 0 | 11 | 0 | 8.8 | 0.2 |
| KLM | 1622 | 0 | 7 | 1.5 | 0.1 | 1618 | 0 | 8 | 0 | 7.4 | 0.6 |
| LDA | 90 | 0 | 3 | 1.5 | 0.2 | 90 | 2 | 7 | 0 | 8.3 | 0.4 |
| LDI | 439 | 0 | 100 | 1.6 | -0.5 | 439 | 0 | 6 | 0 | 7.4 | -0.2 |
| LIB | 140 | 1 | 4 | 1.6 | 0.9 | 142 | 0 | 7 | 0 | 8.5 | 0.7 |
| LOT | 182 | 0 | 3 | 2.0 | -1.2 | 180 | 1 | 7 | 0 | 7.7 | 0.1 |
| LTU | 493 | 0 | 5 | 1.6 | -0.2 | 494 | 0 | 5 | 0 | 6.7 | 0.6 |
| MAH | 22 | 0 | 0 | 1.8 | -0.2 | 22 | 0 | 5 | 0 | 11.9 | 1.9 |
| MAS | 27 | 0 | 0 | 2.0 | 1.1 | 27 | 0 | 0 | 0 | 5.2 | 0.2 |

|  | TEMPERATURE |  |  |  |  | WIND |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|
| IDENT. | N.REP. | PG | PR | RMS | BIAS | N.REP. | PG | PR | PC | RMS | BIAS |
| MMZ | 43 | 0 | 16 | 2.2 | 1.3 | 42 | 0 | 24 | 0 | 9.9 | 0.5 |
| MON | 77 | 0 | 1 | 1.5 | 0.3 | 76 | 0 | 3 | 0 | 8.3 | 0.9 |
| MPD | 167 | 0 | 7 | 1.5 | -0.1 | 167 | 0 | 8 | 0 | 8.3 | 0.6 |
| MPH | 633 | 0 | 2 | 1.7 | -0.6 | 637 | 0 | 2 | 0 | 6.5 | 0.8 |
| NCA | 23 | 0 | 0 | 1.5 | 1.0 | 23 | 0 | 0 | 0 | 6.7 | 0.8 |
| NWA | 4296 | 0 | 2 | 1.6 | 0.4 | 4256 | 0 | 2 | 0 | 7.0 | 0.5 |
| PAC | 106 | 3 | 12 | 1.9 | 0.0 | 107 | 0 | 10 | 0 | 9.0 | 0.7 |
| RAM | 101 | 1 | 4 | 1.5 | -0.6 | 101 | 0 | 6 | 0 | 8.0 | 1.1 |
| RCH | 58 | 0 | 7 | 2.2 | 0.9 | 61 | 0 | 8 | 0 | 10.7 | 2.8 |
| RJA | 65 | 0 | 0 | 1.6 | 0.1 | 67 | 0 | 6 | 0 | 11.5 | 0.7 |
| ROY | 263 | 0 | 5 | 2.0 | -0.4 | 261 | 0 | 100 | 0 | 8.9 | 1.6 |
| RRR | 77 | 0 | 5 | 1.4 | 0.3 | 80 | 0 | 8 | 0 | 8.1 | 0.1 |
| RZO | 153 | 1 | 5 | 1.1 | -0.4 | 151 | 0 | 7 | 0 | 8.5 | 1.0 |
| SAS | 1583 | 0 | 29 | 1.5 | -0.3 | 1578 | 0 | 30 | 0 | 6.7 | 0.5 |
| SIA | 98 | 2 | 5 | 1.7 | -0.7 | 97 | 0 | 3 | 0 | 6.7 | 0.7 |
| SLR | 151 | 0 | 11 | 1.4 | -0.8 | 151 | 0 | 12 | 0 | 5.8 | 0.6 |
| SVA | 142 | 0 | 4 | 1.8 | -0.3 | 147 | 0 | 3 | 0 | 6.1 | 0.8 |
| SWR | 77 | 0 | 1 | 1.2 | 0.3 | 80 | 1 | 10 | 0 | 10.3 | 4.5 |
| TAP | 383 | 1 | 4 | 1.4 | -0.1 | 382 | 1 | 5 | 0 | 7.9 | 0.5 |
| TCU | 71 | 0 | 4 | 1.7 | -0.4 | 70 | 0 | 6 | 0 | 8.7 | 1.0 |
| TPA | 20 | 0 | 0 | 1.3 | 0.2 | 20 | 0 | 0 | 0 | 7.7 | 1.1 |
| TSC | 325 | 1 | 4 | 1.9 | 0.5 | 328 | 0 | 5 | 0 | 9.5 | 0.3 |
| TWA | 834 | 0 | 5 | 1.4 | -0.1 | 818 | 0 | 6 | 0 | 7.6 | 0.9 |
| UAL | 2081 | 0 | 100 | 1.9 | -0.1 | 2100 | 0 | 100 | 0 | 6.5 | 0.9 |
| UPS | 670 | 0 | 10 | 1.7 | 0.3 | 686 | 0 | 11 | 0 | 7.7 | 0.7 |
| USA | 227 | 0 | 1 | 1.3 | 0.1 | 194 | 0 | 3 | 0 | 7.4 | 1.3 |
| VIR | 619 | 1 | 4 | 1.7 | 0.0 | 621 | 1 | 5 | 0 | 8.0 | 1.1 |
| VKG | 51 | 4 | 8 | 2.3 | 0.4 | 51 | 0 | 4 | 0 | 9.4 | 0.6 |
| WOA | 100 | 0 | 6 | 1.3 | 0.3 | 102 | 0 | 11 | 0 | 6.4 | 1.2 |
| YSS | 29 | 0 | 3 | 1.2 | 0.8 | 29 | 0 | 3 | 0 | 5.2 | 1.0 |
| EU | 18046 | 0 | 15 | 1.3 | -0.1 | 18046 | 0 | 15 | 0 | 4.9 | 0.6 |
| KL | 3956 | 0 | 9 | 1.4 | 0.8 | 3945 | 0 | 9 | 0 | 4.8 | 0.9 |
| LH | 236 | 0 | 4 | 1.6 | 0.9 | 236 | 0 | 4 | 0 | 4.0 | 1.1 |
| N | 354 | 1 | 4 | 2.5 | 1.0 | 365 | 1 | 5 | 0 | 7.9 | 0.7 |
| US ACARS | 19174 | 0 | 24 | 1.4 | 0.6 | 19172 | 0 | 19 | 0 | 5.3 | 0.7 |

# TABLE 10

## MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
## MONITORING CENTRE: BRACKNELL
## MONTH: August 2000

**Monitoring procedures**

**Period** :One calendar month.

**Data monitored** :Reports from selected radiosonde TEMPs.

**Area monitored** :0°N - 90°N, 100°W - 40°E

**Standard of comparison** :Background field from UKMO global model.

**Position** :Average latitude and longitude for period.

**Observation times** :00, 12 UTC.

**Level monitored** :100 hPa.

**Element monitored** :GEOPOTENTIAL HEIGHT in metres

**Parameters monitored** :NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:SD :SD of difference of observations from background values at level shown excluding those with gross errors.

:BIAS :Mean difference of observations from background values at level shown excluding those with gross errors.

**GROSS ERROR LIMITS** :Defined in Appendix I.1

| WMO IDENT | OBS TIME | ELM | LEV | NUM OBS | NUM GROSS | SD | RMS | BIAS |
|---|---|---|---|---|---|---|---|---|
| DBLK | 12 | Z | 100 | 8 | 0 | 13.1 | 13.1 | 0.1 |
| ELML7 | 00 | Z | 100 | 4 | 0 | 7.2 | 9.5 | 6.3 |
| ELML7 | 12 | Z | 100 | 13 | 0 | 17.8 | 20.3 | 9.8 |
| FNOR | 00 | Z | 100 | 11 | 0 | 9.0 | 28.8 | 27.4 |
| FNOR | 12 | Z | 100 | 13 | 0 | 11.7 | 19.0 | 15.0 |
| FNOU | 00 | Z | 100 | 10 | 0 | 58.2 | 58.2 | 0.9 |
| FNOU | 12 | Z | 100 | 10 | 0 | 9.9 | 14.3 | 10.4 |
| FNPH | 00 | Z | 100 | 11 | 0 | 14.6 | 19.2 | 12.5 |
| FNPH | 12 | Z | 100 | 14 | 0 | 23.3 | 25.7 | 11.0 |
| FNRS | 00 | Z | 100 | 11 | 0 | 9.6 | 20.0 | 17.5 |
| FNRS | 12 | Z | 100 | 11 | 0 | 10.1 | 12.0 | 6.4 |
| LDWR | 00 | Z | 100 | 29 | 0 | 9.9 | 11.6 | 6.0 |
| LDWR | 12 | Z | 100 | 28 | 0 | 8.8 | 9.1 | -2.6 |
| OVYA2 | 00 | Z | 100 | 14 | 0 | 13.1 | 18.7 | 13.4 |
| OVYA2 | 12 | Z | 100 | 9 | 0 | 10.7 | 18.2 | 14.8 |
| OXYH2 | 00 | Z | 100 | 16 | 0 | 14.8 | 15.3 | 3.6 |
| OXYH2 | 12 | Z | 100 | 21 | 0 | 12.2 | 12.8 | -4.0 |
| S6LA | 12 | Z | 100 | 1 | 0 | 0.0 | 35.0 | 35.0 |
| ZCBP6 | 00 | Z | 100 | 7 | 0 | 14.4 | 31.5 | 28.0 |
| ZCBP6 | 12 | Z | 100 | 7 | 0 | 15.6 | 25.2 | 19.7 |
| 03953 | 00 | Z | 100 | 29 | 0 | 14.1 | 30.8 | 27.3 |
| 03953 | 12 | Z | 100 | 29 | 0 | 15.7 | 21.4 | 14.6 |
| 04018 | 00 | Z | 100 | 30 | 0 | 8.7 | 22.4 | 20.7 |
| 04018 | 12 | Z | 100 | 30 | 0 | 12.4 | 16.8 | 11.3 |
| 04220 | 00 | Z | 100 | 28 | 0 | 11.0 | 19.7 | 16.4 |
| 04220 | 12 | Z | 100 | 30 | 0 | 13.0 | 14.5 | 6.4 |
| 04270 | 00 | Z | 100 | 28 | 0 | 9.3 | 13.9 | 10.3 |
| 04270 | 12 | Z | 100 | 30 | 0 | 10.2 | 10.3 | 0.6 |
| 04339 | 00 | Z | 100 | 27 | 0 | 7.5 | 22.4 | 21.1 |
| 04339 | 12 | Z | 100 | 28 | 0 | 9.2 | 15.5 | 12.5 |
| 04360 | 00 | Z | 100 | 29 | 0 | 9.9 | 15.9 | 12.4 |
| 04360 | 12 | Z | 100 | 30 | 0 | 9.7 | 9.7 | 0.3 |
| 08001 | 00 | Z | 100 | 26 | 0 | 22.3 | 22.7 | -4.3 |
| 08001 | 12 | Z | 100 | 27 | 0 | 20.9 | 23.7 | -11.3 |
| 08508 | 00 | Z | 100 | 28 | 0 | 12.7 | 22.7 | 18.8 |
| 08508 | 12 | Z | 100 | 28 | 0 | 12.4 | 21.1 | 17.0 |
| 08522 | 12 | Z | 100 | 29 | 0 | 9.0 | 9.2 | 2.2 |
| 71600 | 00 | Z | 100 | 30 | 0 | 12.5 | 18.4 | 13.6 |
| 71600 | 12 | Z | 100 | 30 | 0 | 11.6 | 17.0 | 12.5 |
| 72201 | 00 | Z | 100 | 27 | 0 | 16.9 | 22.1 | 14.2 |
| 72201 | 12 | Z | 100 | 28 | 0 | 20.0 | 21.4 | 7.7 |
| 72402 | 00 | Z | 100 | 28 | 0 | 15.7 | 43.6 | 40.7 |
| 72402 | 12 | Z | 100 | 29 | 0 | 12.8 | 44.8 | 43.0 |
| 74494 | 00 | Z | 100 | 26 | 0 | 12.9 | 18.2 | 12.8 |
| 74494 | 12 | Z | 100 | 27 | 0 | 9.5 | 9.8 | -2.6 |
| 78016 | 00 | Z | 100 | 27 | 0 | 10.6 | 42.8 | 41.5 |
| 78016 | 12 | Z | 100 | 29 | 0 | 10.5 | 34.7 | 33.1 |

## TABLE 11

## MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
### MONITORING CENTRE: BRACKNELL
### MONTH: August 2000

**Monitoring procedures:**

| | | |
|---|---|---|
| **Period** | | :One calendar month. |
| **Data monitored** | | :Reports from selected radiosonde TEMPs. |
| **Area monitored** | | :0°N - 90°N, 100°W - 40°E |
| **Standard of comparison** | | :Background field from UKMO global model. |
| **Position** | | :Average latitude and longitude for period. |
| **Observation times** | | :00, 12 UTC. |
| **Level monitored** | | :500 hPa. |
| **Element monitored** | | :GEOPOTENTIAL HEIGHT in metres |
| **Parameters monitored** | :NUM OBS | :Number of observations available at level shown during period. |
| | :NUM GROSS | :Number of gross errors at level shown during period. |
| | :SD | :SD of difference of observations from background values at level shown excluding those with gross errors. |
| | :BIAS | :Mean difference of observations from background values at level shown excluding those with gross errors. |

**GROSS ERROR LIMITS** :Defined in Appendix I.1

| WMO IDENT | OBS TIME | ELM | LEV | NUM OBS | NUM GROSS | SD | RMS | BIAS |
|---|---|---|---|---|---|---|---|---|
| DBLK | 12 | Z | 500 | 8 | 0 | 10.2 | 10.4 | 2.0 |
| ELML7 | 00 | Z | 500 | 10 | 0 | 4.6 | 7.3 | 5.7 |
| ELML7 | 12 | Z | 500 | 16 | 0 | 15.7 | 15.9 | 2.4 |
| FNOR | 00 | Z | 500 | 12 | 0 | 12.7 | 13.9 | 5.8 |
| FNOR | 12 | Z | 500 | 13 | 0 | 7.1 | 10.5 | 7.8 |
| FNOU | 00 | Z | 500 | 11 | 0 | 10.0 | 10.6 | 3.5 |
| FNOU | 12 | Z | 500 | 11 | 0 | 9.6 | 11.7 | 6.7 |
| FNPH | 00 | Z | 500 | 13 | 0 | 10.1 | 10.2 | 1.5 |
| FNPH | 12 | Z | 500 | 15 | 0 | 11.0 | 11.3 | 2.7 |
| FNRS | 00 | Z | 500 | 12 | 0 | 6.2 | 6.3 | -1.1 |
| FNRS | 12 | Z | 500 | 11 | 0 | 11.0 | 11.0 | 0.1 |
| LDWR | 00 | Z | 500 | 29 | 0 | 7.5 | 8.1 | 3.2 |
| LDWR | 12 | Z | 500 | 28 | 0 | 6.4 | 7.5 | -3.8 |
| OVYA2 | 00 | Z | 500 | 15 | 0 | 10.1 | 12.8 | 7.9 |
| OVYA2 | 12 | Z | 500 | 10 | 0 | 7.3 | 11.7 | 9.1 |
| OXYH2 | 00 | Z | 500 | 18 | 0 | 11.6 | 13.3 | -6.5 |
| OXYH2 | 12 | Z | 500 | 21 | 0 | 11.6 | 13.2 | -6.4 |
| S6LA | 12 | Z | 500 | 1 | 0 | 0.0 | 4.0 | 4.0 |
| ZCBP6 | 00 | Z | 500 | 7 | 0 | 10.6 | 10.7 | 1.6 |
| ZCBP6 | 12 | Z | 500 | 7 | 0 | 8.9 | 10.5 | 5.6 |
| 03953 | 00 | Z | 500 | 29 | 0 | 6.6 | 8.9 | 5.9 |
| 03953 | 12 | Z | 500 | 29 | 0 | 8.8 | 10.7 | 6.0 |
| 04018 | 00 | Z | 500 | 30 | 0 | 8.6 | 14.6 | 11.8 |
| 04018 | 12 | Z | 500 | 30 | 0 | 9.7 | 11.9 | 6.8 |
| 04220 | 00 | Z | 500 | 28 | 0 | 8.7 | 8.9 | 2.2 |
| 04220 | 12 | Z | 500 | 30 | 0 | 9.2 | 9.5 | 2.2 |
| 04270 | 00 | Z | 500 | 28 | 0 | 8.5 | 10.3 | 5.8 |
| 04270 | 12 | Z | 500 | 30 | 0 | 13.3 | 13.4 | -1.0 |
| 04339 | 00 | Z | 500 | 28 | 0 | 8.9 | 15.6 | 12.9 |
| 04339 | 12 | Z | 500 | 29 | 0 | 10.5 | 14.7 | 10.2 |
| 04360 | 00 | Z | 500 | 29 | 0 | 9.2 | 10.3 | 4.7 |
| 04360 | 12 | Z | 500 | 30 | 0 | 8.7 | 8.9 | 2.0 |
| 08001 | 00 | Z | 500 | 27 | 0 | 14.0 | 15.3 | -6.0 |
| 08001 | 12 | Z | 500 | 27 | 0 | 12.7 | 13.7 | -5.3 |
| 08508 | 00 | Z | 500 | 28 | 0 | 10.8 | 10.8 | 0.6 |
| 08508 | 12 | Z | 500 | 29 | 0 | 7.7 | 10.2 | 6.7 |
| 08522 | 12 | Z | 500 | 29 | 0 | 8.9 | 9.7 | 4.0 |
| 60020 | 00 | Z | 500 | 29 | 0 | 6.6 | 11.1 | 8.9 |
| 60020 | 12 | Z | 500 | 30 | 0 | 8.5 | 11.7 | 8.1 |
| 71600 | 00 | Z | 500 | 30 | 0 | 11.6 | 11.6 | -0.6 |
| 71600 | 12 | Z | 500 | 30 | 0 | 11.6 | 13.8 | 7.5 |
| 72201 | 00 | Z | 500 | 28 | 0 | 6.7 | 6.8 | -0.9 |
| 72201 | 12 | Z | 500 | 28 | 0 | 6.5 | 7.4 | -3.6 |
| 72402 | 00 | Z | 500 | 28 | 0 | 6.8 | 9.7 | 6.9 |
| 72402 | 12 | Z | 500 | 29 | 0 | 7.6 | 8.2 | 3.2 |
| 74494 | 00 | Z | 500 | 28 | 0 | 7.5 | 7.8 | 1.9 |
| 74494 | 12 | Z | 500 | 27 | 0 | 5.4 | 5.5 | -0.7 |
| 78016 | 00 | Z | 500 | 29 | 0 | 6.3 | 17.2 | 16.0 |
| 78016 | 12 | Z | 500 | 29 | 0 | 6.8 | 19.3 | 18.1 |

# TABLE 12

## MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
## MONITORING CENTRE: BRACKNELL
## MONTH: August 2000

**Monitoring procedures**

**Period** :One calendar month.

**Data monitored** :Reports from selected radiosonde TEMPs.

**Area monitored** :0°N - 90°N, 100°W - 40°E

**Standard of comparison** :Background field from UKMO global model.

**Position** :Average latitude and longitude for period.

**Observation times** :00, 12 UTC.

**Level monitored** :100 hPa.

**Element monitored** :VECTOR WIND in m s$^{-1}$

**Parameters monitored** :NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:UBIAS,VBIAS :Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.

:RMS :Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

**GROSS ERROR LIMITS** :Defined in Appendix I.2

| WMO IDENT | OBS TIME | ELM | LEV | NUM OBS | NUM GROSS | % REJ | RMS | UBIAS | VBIAS |
|---|---|---|---|---|---|---|---|---|---|
| DBLK | 12 | V | 100 | 7 | 0 | 0 | 2.2 | -1.6 | 0.2 |
| ELML7 | 00 | V | 100 | 7 | 0 | 0 | 7.5 | 1.0 | 0.4 |
| ELML7 | 12 | V | 100 | 11 | 0 | 0 | 4.7 | 1.3 | -0.6 |
| FNOR | 00 | V | 100 | 13 | 0 | 0 | 4.0 | -0.1 | 0.5 |
| FNOR | 12 | V | 100 | 14 | 0 | 0 | 4.7 | -0.7 | -0.5 |
| FNOU | 00 | V | 100 | 10 | 0 | 0 | 5.1 | -1.7 | 1.5 |
| FNOU | 12 | V | 100 | 10 | 0 | 0 | 3.7 | -0.9 | -1.5 |
| FNPH | 00 | V | 100 | 9 | 0 | 0 | 3.7 | 1.1 | -0.3 |
| FNPH | 12 | V | 100 | 14 | 0 | 0 | 4.4 | -0.7 | -0.9 |
| FNRS | 00 | V | 100 | 7 | 0 | 0 | 5.1 | -0.4 | 1.6 |
| FNRS | 12 | V | 100 | 6 | 0 | 0 | 2.7 | 0.2 | -0.1 |
| LDWR | 00 | V | 100 | 30 | 0 | 0 | 2.2 | -0.1 | 0.2 |
| LDWR | 12 | V | 100 | 27 | 0 | 0 | 1.7 | -0.6 | 0.3 |
| OVYA2 | 00 | V | 100 | 12 | 0 | 0 | 4.4 | 1.0 | -0.9 |
| OVYA2 | 12 | V | 100 | 8 | 0 | 0 | 2.9 | -0.5 | -1.1 |
| OXYH2 | 00 | V | 100 | 17 | 0 | 0 | 3.2 | -0.3 | -0.5 |
| OXYH2 | 12 | V | 100 | 15 | 0 | 0 | 4.6 | -1.0 | -0.6 |
| S6LA | 12 | V | 100 | 1 | 0 | 0 | 4.2 | -4.1 | -0.7 |
| ZCBP6 | 00 | V | 100 | 5 | 0 | 0 | 3.5 | -0.1 | 0.0 |
| ZCBP6 | 12 | V | 100 | 6 | 0 | 16 | 17.0 | -6.2 | -0.8 |
| 03953 | 00 | V | 100 | 30 | 0 | 0 | 2.7 | 0.5 | 0.9 |
| 03953 | 12 | V | 100 | 28 | 0 | 0 | 2.5 | -0.2 | 0.5 |
| 04018 | 00 | V | 100 | 31 | 0 | 0 | 3.2 | -0.6 | 0.2 |
| 04018 | 12 | V | 100 | 30 | 0 | 0 | 2.9 | -0.9 | 0.0 |
| 04220 | 00 | V | 100 | 27 | 0 | 0 | 2.9 | 0.6 | 0.3 |
| 04220 | 12 | V | 100 | 30 | 0 | 0 | 2.9 | -0.1 | 0.3 |
| 04270 | 00 | V | 100 | 27 | 0 | 0 | 3.7 | -0.6 | 0.0 |
| 04270 | 12 | V | 100 | 30 | 0 | 0 | 3.3 | 0.3 | -0.4 |
| 04339 | 00 | V | 100 | 26 | 0 | 8 | 5.6 | 0.9 | -0.7 |
| 04339 | 12 | V | 100 | 27 | 0 | 0 | 3.9 | -1.4 | 0.5 |
| 04360 | 00 | V | 100 | 30 | 0 | 0 | 2.9 | -0.5 | -0.1 |
| 04360 | 12 | V | 100 | 29 | 0 | 0 | 2.5 | -0.9 | -0.6 |
| 08001 | 00 | V | 100 | 27 | 0 | 0 | 4.6 | 1.1 | 2.3 |
| 08001 | 12 | V | 100 | 26 | 0 | 0 | 3.7 | 0.0 | -0.3 |
| 08508 | 00 | V | 100 | 16 | 0 | 0 | 3.6 | 0.1 | 1.3 |
| 08508 | 12 | V | 100 | 18 | 0 | 0 | 4.0 | -0.1 | -0.3 |
| 08522 | 12 | V | 100 | 29 | 0 | 0 | 5.2 | 2.4 | -1.6 |
| 71600 | 00 | V | 100 | 31 | 0 | 0 | 3.9 | 0.6 | 1.2 |
| 71600 | 12 | V | 100 | 30 | 0 | 0 | 2.9 | 0.3 | 0.1 |
| 72201 | 00 | V | 100 | 28 | 0 | 0 | 3.7 | 0.9 | 0.3 |
| 72201 | 12 | V | 100 | 28 | 0 | 0 | 3.6 | 0.5 | -0.7 |
| 72402 | 00 | V | 100 | 30 | 0 | 0 | 3.3 | 0.2 | -0.5 |
| 72402 | 12 | V | 100 | 29 | 0 | 0 | 4.5 | -1.0 | 0.9 |
| 74494 | 00 | V | 100 | 27 | 0 | 0 | 2.5 | -0.3 | 0.5 |
| 74494 | 12 | V | 100 | 28 | 0 | 0 | 2.3 | 0.0 | 0.5 |
| 78016 | 00 | V | 100 | 27 | 0 | 0 | 5.1 | -1.5 | 1.1 |
| 78016 | 12 | V | 100 | 28 | 0 | 0 | 4.2 | 0.0 | 1.0 |

## TABLE 13

## MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
## MONITORING CENTRE: BRACKNELL
## MONTH: August 2000

### Monitoring procedures

| | | |
|---|---|---|
| **Period** | | :One calendar month. |
| **Data monitored** | | :Reports from selected radiosonde TEMPs. |
| **Area monitored** | | :0°N - 90°N, 100°W - 40°E |
| **Standard of comparison** | | :Background field from UKMO global model. |
| **Position** | | :Average latitude and longitude for period. |
| **Observation times** | | :00, 12 UTC. |
| **Level monitored** | | :500 hPa. |
| **Element monitored** | | :VECTOR WIND in m $s^{-1}$ |
| **Parameters monitored** | :NUM OBS | :Number of observations available at level shown during period. |
| | :NUM GROSS | :Number of gross errors at level shown during period. |
| | :UBIAS,VBIAS: | Mean difference of observations of U and V components from background values at level shown excluding those with gross errors. |
| | :RMS | :Root Mean Square difference of observations from background values at level shown excluding those with gross errors. |

**GROSS ERROR LIMITS** :Defined in Appendix I.2

| WMO IDENT | OBS TIME | ELM | LEV | NUM OBS | NUM GROSS | % REJ | RMS | UBIAS | VBIAS |
|---|---|---|---|---|---|---|---|---|---|
| DBLK | 12 | V | 500 | 7 | 0 | 0 | 4.2 | -0.7 | 0.7 |
| ELML7 | 00 | V | 500 | 11 | 0 | 0 | 3.8 | -0.3 | -0.4 |
| ELML7 | 12 | V | 500 | 16 | 0 | 0 | 3.1 | -0.4 | 0.1 |
| FNOR | 00 | V | 500 | 11 | 0 | 0 | 3.7 | -0.1 | -1.3 |
| FNOR | 12 | V | 500 | 14 | 0 | 0 | 4.6 | -0.6 | 0.4 |
| FNOU | 00 | V | 500 | 10 | 0 | 0 | 3.5 | -0.3 | 1.0 |
| FNOU | 12 | V | 500 | 10 | 0 | 0 | 3.7 | -0.8 | 0.9 |
| FNPH | 00 | V | 500 | 10 | 0 | 0 | 4.6 | 1.8 | 1.9 |
| FNPH | 12 | V | 500 | 14 | 0 | 0 | 4.4 | -2.0 | -0.4 |
| FNRS | 00 | V | 500 | 8 | 0 | 0 | 4.2 | 0.6 | -1.4 |
| FNRS | 12 | V | 500 | 8 | 0 | 0 | 3.6 | 0.1 | -2.0 |
| LDWR | 00 | V | 500 | 30 | 0 | 0 | 3.2 | -0.4 | 0.6 |
| LDWR | 12 | V | 500 | 28 | 0 | 0 | 3.0 | -0.5 | -0.4 |
| OVYA2 | 00 | V | 500 | 11 | 0 | 0 | 4.1 | -0.9 | 0.2 |
| OVYA2 | 12 | V | 500 | 10 | 0 | 0 | 2.7 | -0.4 | 0.5 |
| OXYH2 | 00 | V | 500 | 17 | 0 | 0 | 3.4 | 0.2 | 0.5 |
| OXYH2 | 12 | V | 500 | 15 | 0 | 0 | 4.1 | -0.6 | -0.1 |
| S6LA | 12 | V | 500 | 1 | 0 | 0 | 9.9 | -0.3 | -9.9 |
| ZCBP6 | 00 | V | 500 | 5 | 0 | 0 | 4.5 | 0.7 | -1.8 |
| ZCBP6 | 12 | V | 500 | 5 | 0 | 0 | 3.1 | 1.1 | -0.3 |
| 03953 | 00 | V | 500 | 30 | 0 | 0 | 3.4 | 0.0 | 0.4 |
| 03953 | 12 | V | 500 | 27 | 0 | 0 | 4.2 | -0.1 | 0.4 |
| 04018 | 00 | V | 500 | 31 | 0 | 0 | 4.2 | -0.2 | -0.4 |
| 04018 | 12 | V | 500 | 30 | 0 | 0 | 3.5 | 0.6 | 0.6 |
| 04220 | 00 | V | 500 | 26 | 0 | 0 | 5.1 | 0.0 | 0.4 |
| 04220 | 12 | V | 500 | 30 | 0 | 0 | 5.1 | -1.4 | 0.1 |
| 04270 | 00 | V | 500 | 28 | 0 | 0 | 3.5 | -0.8 | 0.1 |
| 04270 | 12 | V | 500 | 29 | 0 | 0 | 3.8 | -0.1 | 0.7 |
| 04339 | 00 | V | 500 | 29 | 0 | 7 | 6.4 | -0.5 | 0.2 |
| 04339 | 12 | V | 500 | 29 | 0 | 0 | 5.0 | -0.3 | -0.6 |
| 04360 | 00 | V | 500 | 30 | 0 | 0 | 4.1 | -0.1 | 0.4 |
| 04360 | 12 | V | 500 | 30 | 0 | 0 | 3.6 | 0.3 | 0.4 |
| 08001 | 00 | V | 500 | 28 | 0 | 0 | 4.7 | 0.4 | 0.6 |
| 08001 | 12 | V | 500 | 27 | 0 | 0 | 4.2 | 0.3 | -0.5 |
| 08508 | 00 | V | 500 | 17 | 0 | 0 | 3.4 | -0.5 | 0.2 |
| 08508 | 12 | V | 500 | 16 | 0 | 0 | 3.3 | -0.2 | 0.0 |
| 08522 | 12 | V | 500 | 29 | 0 | 0 | 4.4 | 0.7 | 0.4 |
| 60020 | 00 | V | 500 | 28 | 0 | 0 | 4.6 | -0.4 | -0.8 |
| 60020 | 12 | V | 500 | 30 | 0 | 0 | 4.6 | -0.5 | 0.0 |
| 71600 | 00 | V | 500 | 31 | 0 | 0 | 4.0 | -0.3 | -0.6 |
| 71600 | 12 | V | 500 | 30 | 0 | 0 | 3.9 | 0.8 | 0.7 |
| 72201 | 00 | V | 500 | 29 | 0 | 0 | 3.1 | 0.3 | -0.9 |
| 72201 | 12 | V | 500 | 28 | 0 | 0 | 2.6 | -0.5 | 0.0 |
| 72402 | 00 | V | 500 | 30 | 0 | 0 | 4.0 | -0.2 | -0.3 |
| 72402 | 12 | V | 500 | 29 | 0 | 0 | 3.1 | 0.2 | 1.0 |
| 74494 | 00 | V | 500 | 29 | 0 | 0 | 2.7 | -0.8 | 0.0 |
| 74494 | 12 | V | 500 | 28 | 0 | 0 | 3.5 | 0.4 | 1.2 |
| 78016 | 00 | V | 500 | 30 | 0 | 0 | 3.2 | -1.1 | 0.0 |
| 78016 | 12 | V | 500 | 29 | 0 | 0 | 3.8 | -0.3 | 2.2 |

# APPENDIX I

1. The gross error limits for observation minus background differences of geopotential height in Tables 5, 10 and 11 are:-

| Level (hPa) | Geopotential height (metres) |
|---|---|
| 1000 | 100 |
| 850 | 100 |
| 700 | 100 |
| 500 | 150 |
| 400 | 175 |
| 300 | 200 |
| 250 | 225 |
| 200 | 250 |
| 150 | 275 |
| 100 | 300 |
| 70 | 375 |
| 50 | 400 |
| 30 | 450 |

The weighted RMS values used in Table 5,10 and 11 are calculated using the following weights:-

| Level (hPa) | Weight |
|---|---|
| 1000 | 3.70 |
| 850 | 3.40 |
| 700 | 2.90 |
| 500 | 2.20 |
| 400 | 1.90 |
| 300 | 1.60 |
| 250 | 1.50 |
| 200 | 1.37 |
| 150 | 1.19 |
| 100 | 1.00 |
| 70 | 0.87 |
| 50 | 0.80 |
| 30 | 0.64 |

2. The gross error limits for observation minus background differences of windspeed in Tables 6,12 and 13 are:-

| Level (hPa) | Windspeed m $s^{-1}$ |
|---|---|
| 1000 | 35 |
| 850 | 35 |
| 700 | 40 |
| 500 | 45 |
| 400 | 50 |
| 300 | 60 |
| 250 | 60 |
| 200 | 50 |
| 150 | 50 |
| 100 | 45 |